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the 1990s, the number of people in the world who are undernourished has increased from 600 million to 800 million (FAO 1996). The number of people who are malnourished has increased from 1.1 billion to 1.5 billion (FAO 1996).

There are a number of reasons why the number of people who are undernourished has increased. One of the main reasons is that the world population has increased. The world population is now over 6 billion, and it is expected to reach 9 billion by the year 2050. This means that there are more people in the world who need food.

Another reason why the number of people who are undernourished has increased is that the world's food supply is not increasing fast enough. The world's food supply is only increasing at a rate of 1% per year, while the world population is increasing at a rate of 1.2% per year. This means that the world's food supply is not keeping up with the world population.

A third reason why the number of people who are undernourished has increased is that the world's food is not distributed evenly. In some parts of the world, there is a surplus of food, while in other parts, there is a shortage. This is because the world's food is not distributed evenly.

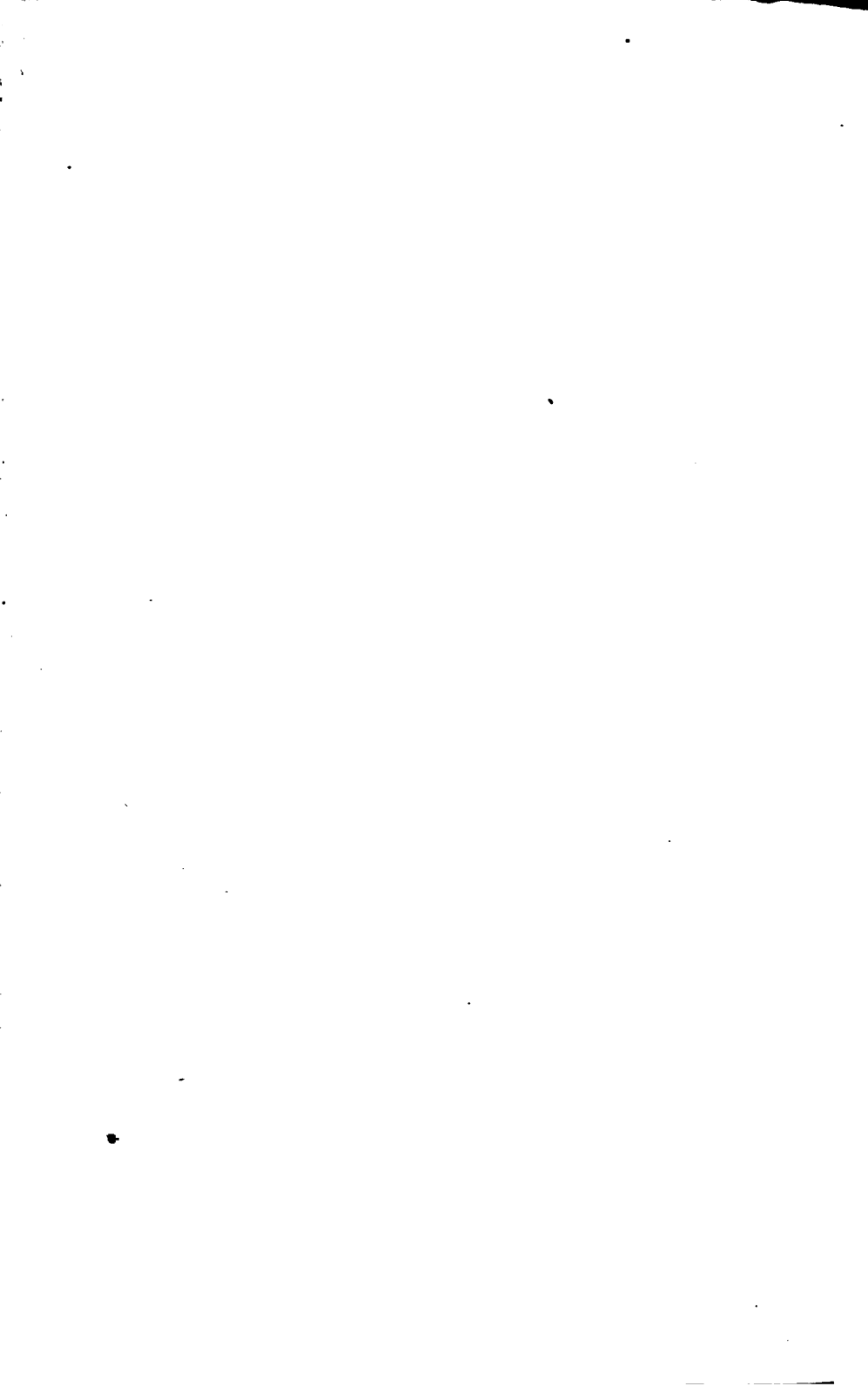
There are a number of ways to reduce the number of people who are undernourished. One way is to increase the world's food supply. This can be done by increasing the amount of land that is used for agriculture, by increasing the amount of water that is used for agriculture, and by increasing the amount of fertilizer that is used for agriculture.

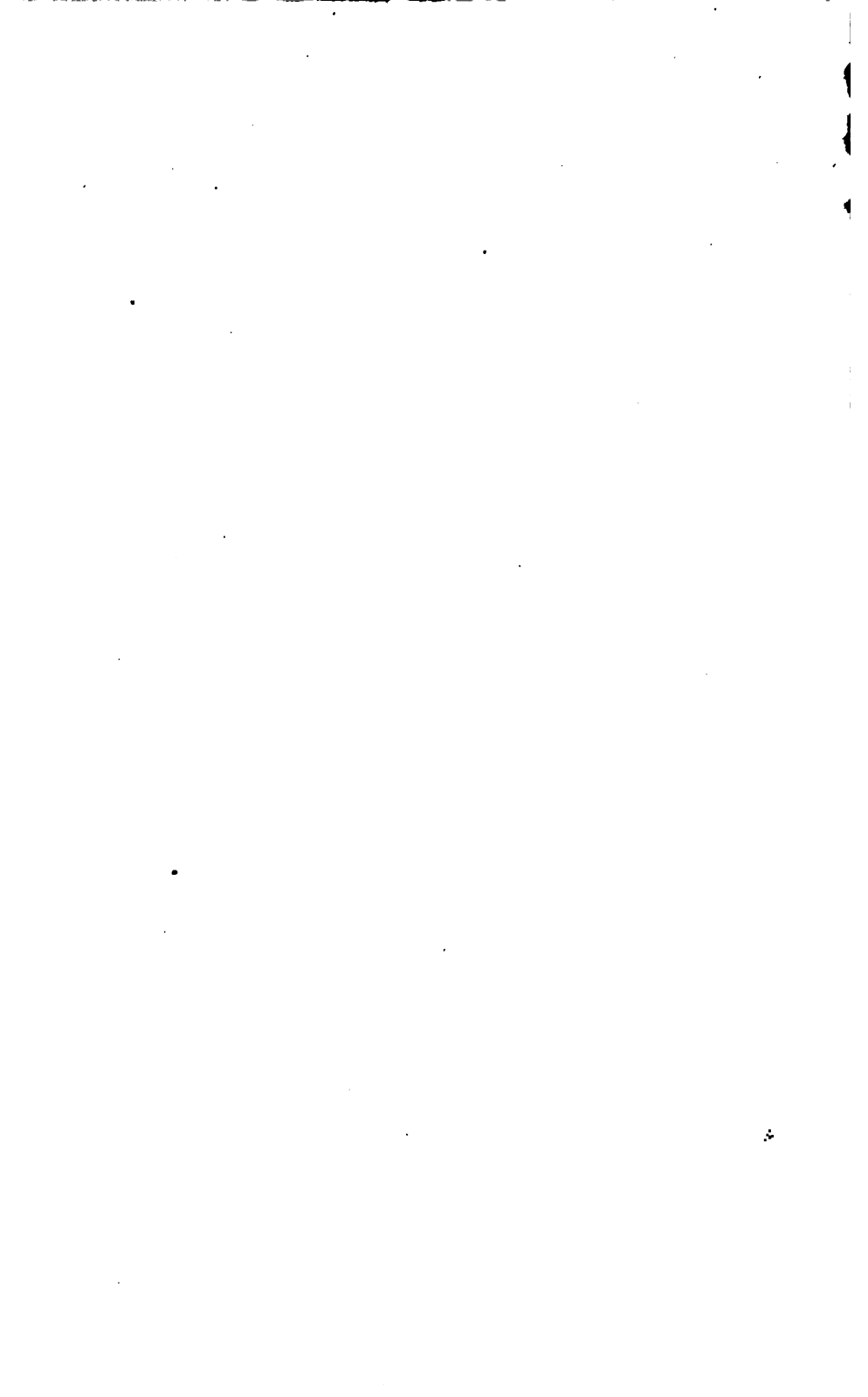
Another way to reduce the number of people who are undernourished is to distribute the world's food more evenly. This can be done by increasing the amount of food that is donated to people who are undernourished, and by increasing the amount of food that is sold to people who are undernourished.

There are a number of other ways to reduce the number of people who are undernourished. These include increasing the amount of food that is produced in the world, increasing the amount of food that is stored in the world, and increasing the amount of food that is transported to the world.

It is important to reduce the number of people who are undernourished. This is because undernourishment can lead to a number of health problems, including malnutrition, anemia, and stunted growth. It can also lead to a number of social problems, including poverty and ill health.







S. 7

A
SYSTEM
OF
PHRENOLOGY.

BY
GEORGE COMBE.

RES NON VERBA QUÆSO.

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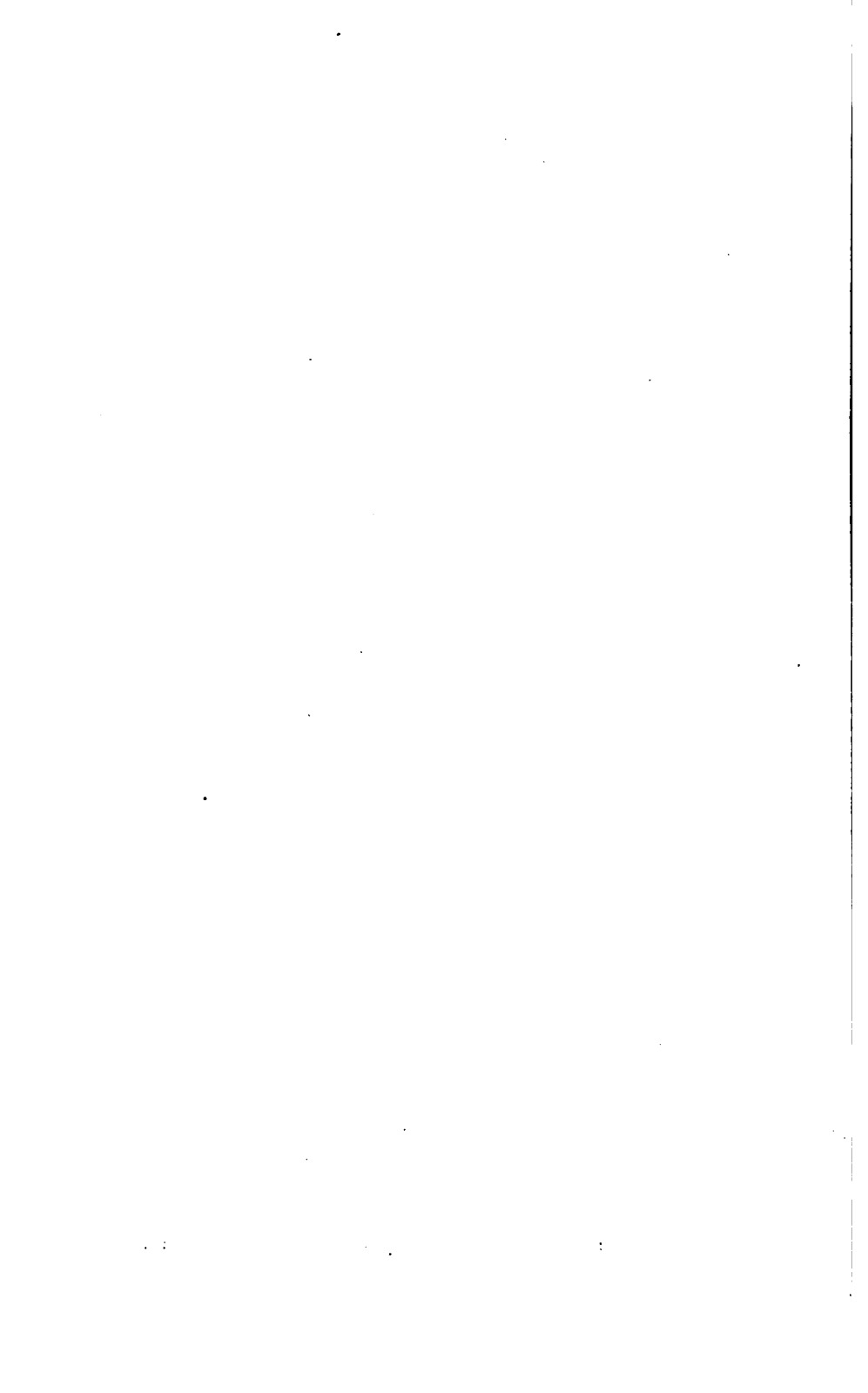
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A

SYSTEM OF PHRENOLOGY.

ORDER II.—INTELLECTUAL FACULTIES.

THESE faculties communicate to man and animals knowledge of their own internal sensations, and also of the external world ; their object is to know existence, and to perceive qualities and relations. Dr Spurzheim's latest division of them is into three genera :

“ I. The External Senses.

“ II. The Internal Senses, or perceptive faculties which procure knowledge of external objects, their physical qualities, and various relations.

“ III. The reflective faculties.”¹

For the sake of uniformity, I here adopt the same classification ; although, as noticed in the Appendix, No. II., it is far from being unexceptionable. But until the analysis of the faculties themselves shall be more complete than at present, an accurate arrangement of them cannot be attained.

¹ *Philosophical Principles of Phrenology.* Boston, United States, 1832, p. 52.

GENUS I.—EXTERNAL SENSES.

By means of the senses, man and animals are brought into communication with the external world. Dr Spurzheim, in his *Physiognomical System*, and, in his more recent work *Phrenology*, gives admirable treatises on the senses ; of which I shall avail myself largely in the following pages.

The opinions entertained by philosophers in regard to the functions of the senses, have in many instances been whimsical, extravagant, and contradictory.

Since the time of Bacon and Locke, the greater number of philosophical systems rest on the axiom of Aristotle, that all ideas come into the mind by means of the external senses. According to this notion, he who possesses them in the highest state of perfection, is able to manifest most powerfully the intellectual faculties of the mind ; or, in other words, the faculties, both of man and animals, ought to be proportionate to the perfection of the senses, and to the education bestowed upon them. Daily experience, however, contradicts this hypothesis. Dr Thomas Brown's doctrine is, that in the sensations " we find the rude elements of all our knowledge, the materials on which the mind is ever operating, and without which it seems to us almost impossible that it could have operated at all, or could, even in its absolute inactivity, have been conscious of its own inert existence."¹

Philosophers of another class maintain, that the mind acts independently of all organization, and that the senses, instead of being instruments of action, are rather impediments to it. They complain much of the illusions of the senses ; and despise all testimony, and all conclusions grounded upon sensation. Such notions are unworthy of being refuted.

¹ *Lectures*, vol. i. p. 398.

Other philosophers, again, have attributed to the external senses many acts which are performed by the internal faculties alone. For instance, Helvetius has said, that man owes his arts to the structure of his hands ; and that, if the hoof of the horse had been joined to the human arm, he would have been still wandering wild in the woods. But many animals have instruments equally curious, and perfect in structure with those to which peculiar capacities of mind have been attributed in man ; and yet these instruments do not produce in them the corresponding functions. Monkeys have hands almost as nicely formed as those which are attached to the human arm ; but do monkeys put wood upon the fire to support combustion ? or do they construct works of art ? According to this theory, also, insects, crawfish, lobsters, and still more the cuttle-fish, ought to have exact ideas of extension, of size, and of the theorems of geometry, in consequence of their numerous and perfect organs of touch.

In point of fact, however, the external instruments are often similar, while the functions performed by them are quite different. The hare and rabbit have similar feet ; yet the hare lies on the surface of the fields, while the rabbit burrows under ground. We have also examples of similar functions observed in animals which have instruments quite different. The proboscis is to the elephant what the hand is to man and to the monkey. The hands of monkeys and the feet of parrots and squirrels, are certainly different ; yet, by means of these instruments, they all move their food to their mouths in eating. In order to dig up truffles, the hog ploughs the earth with his snout, and the dog scratches it with his feet.

Some have taught, that the functions of the senses are not ordained by nature, but acquired by experience. Much, for example, has been written about the *rectification* of the sense of sight, by means of touch ; and about what they call the *acquired perceptions* of sight.

Each sense, however, performs its functions in conse-

quence of its own innate constitution alone ; and the relations of every sense to external impressions are determinate, and subjected to positive laws. If an odour make an impression upon the olfactory nerve, the impression is immediately found to be agreeable or disagreeable ; and this feeling arises from the constitution of the sense, and the relation established between it and the odorous particles which excite it to activity. The functions of every sense depend only on its peculiar organization ; and hence no preceding exercise or habit is necessary, in order to acquire the special power of any sense. If the organization be perfect, the functions are perfect also ; and if the organization be diseased, the functions are deranged, notwithstanding all preceding exercise. If the optic apparatus be perfect in newly hatched birds, their sight is perfect ; as is the case with chickens, ducks, partridges, and quails. If, on the contrary, at the first entrance into life, the organization of the eyes or the ears be imperfect, the power of the animal to see or hear is proportionally deficient. In adult persons, vision is deranged if the eyes be diseased. In old persons, the functions of the five senses lose their energy, because the vital power of the organs is diminished.

It is indeed ridiculous to suppose that Nature should have produced any sense which could not perform its functions without being supported by another and a different sense ;—that, for example, we should not be able to see without feeling, or to hear without seeing. Hence the propositions appear self-evident,—that no sense acquires its functions by means of any other sense, and that any *one* sense cannot be the instrument of producing the sensations experienced by means of *all* the senses collectively. But we must observe, that different senses may enable us to perceive the same object ; and that one sense is more fitted than another to make us acquainted with certain objects, and their qualities. For example, we may obtain a conception of the figure of a book by means of the sense of touch, and also by means of the sense of sight.

Each sense, as already observed, is subject to its own positive laws. For example, we see according to the laws of the refraction of light; and hence, a straight rod half plunged in water appears crooked, although touch proves that, in this situation, the rod continues straight.

This is a kind of rectification; but it must not be confounded with the doctrine which maintains that one sense acquires its functions by means of the rectification of another sense. Touch may shew that a rod which is plunged in water, and looks crooked, is straight; but the eyes will see it crooked as before. The rectifications thus effected by the senses, are reciprocal, and not the prerogative of one sense. In this view, the eyes may rectify the sense of touch. If, without our knowledge, a piece of thin paper be placed between one of our fingers and the thumb, we may not *feel* but we may *see* it. Even smell and taste may rectify the senses of seeing and of touch. Thus, many fluids *look* like water, and it would be impossible to discover them to be different substances by the sense of touch; but it is easy to do so by smell and taste. Thus each sense has its peculiar and independent functions, and each is subject to positive laws. But every sense also perceives impressions of which another is not susceptible; and it is in consequence of this circumstance that the external senses rectify one another; or rather produce, by their co-operation, an extent of accurate conception, which, in an unconnected state, they would have been incapable of affording.

It is a task of considerable difficulty to point out accurately the precise limits of the functions of the senses; because, in every act of perception, their instrumentality is combined with that of the internal faculties of the mind; and it is not easy to discriminate to what extent the act depends upon the one, and to what extent upon the other. For the elucidation of this point, I submit the following considerations to the reader.

The external organs of the senses do not *form ideas*. For example, when an impression is made upon the hand, it is

not the nerves of touch which form the conception of the object making the impression ; they merely receive that impression, and communicate it to the brain, and *an internal faculty of the mind* perceives, or forms an idea of the object by which the impression is caused. Without the nerves of feeling, the internal faculty could not experience the perception ; because the medium of communication between it and the object would be wanting.

Hence, previously to every perception, there must be an impression on the external organs of sense ; and the function if these organs appears to consist in receiving and transmitting this impression to the brain and internal faculties. The nature of the impressions depends on the constitution of the organs of sense, and on the relations established between them and external objects ; and, as it is absolutely impossible for the human will to change either the constitution of the senses, or the relations between them and the external world, it is clearly absurd to speak of acquired impressions.

But, as the senses are constituted with a determinate relation to external objects, so the brain and internal faculties are constituted with a determinate relation to the organs of sense. In virtue of the first relation, a certain object makes a certain impression ; and in virtue of the second, a certain impression gives rise to a certain perception : and both depend on nature, and not on the will, nor on exercise or habit.

But we must distinguish between the perceptions we experience of external objects, and the inferences concerning their qualities which we draw by reasoning from these perceptions. All those ideas which are pure perceptions are formed intuitively, on the presentation of objects fitted to excite them. Inferences from these, on the other hand, are the result of our reasoning powers. What are sometimes called "acquired perceptions," are merely *habits of reasoning* from the impressions naturally made on the senses ; and these habits are just as much a part of our *nature* as the original perceptions. It appears to me, that the visible and

tangible appearances of bodies are simple perceptions, because, after the amplest experience of some of these being deceitful, we cannot, in the slightest degree, alter our perceptions of them. For example, a rod half immersed in water appears crooked, in defiance of every endeavour to see it straight. When we stand three or four yards distant from a mirror, and perceive our image in it, we cannot, by any efforts, succeed in perceiving the image as if formed on the surface of the mirror, although we know perfectly that it is so. It appears always at the same distance behind the surface as we are before it. If a picture be painted according to the rules of perspective, so as to represent a vista in the country, or a long street in a city, we are altogether incapable, when in the proper position for viewing it, of perceiving the surface to be plain. The picture appears to us to represent objects at different distances, and the most determined resolution to see them all equally near is of no avail, although we know that, in point of fact, they are so.¹

If, previously to experience, all objects seen by the eye appear only as of different colours and shades, and all equally near although really at different distances; and if we learn by experience only, that this natural appearance is deceitful, and that, in point of fact, one object is near and another distant; I cannot perceive a reason why we might not learn, by experience, also to perceive pictures as plain surfaces, and images as if formed on the surfaces of mirrors—in short, to get quit altogether of the illusions of optics. If it be easy to acquire, by habit, the power of perceiving objects as at different distances, which naturally appear to the eye as all equally near, it ought to be no difficult matter to learn by experience to perceive a surface to be plain which really is

¹ I am informed that there are individuals, enjoying perfect vision, who see their own image always on the surface of a mirror, at whatever distance they stand from it; who naturally see paintings (a diorama of a valley, for instance) as plain surfaces, and who find it necessary to make a mental effort to perceive perspective; but this is not the general case. The organ of size was deficient in the only two individuals thus constituted whom I have seen. See "Organ of Size," in a subsequent page.

so, after we are certain of the fact ; and yet I have never been able to do so. Colour, form, magnitude, and distance, appear to be objects of intuitive perception, when the organs which take cognizance of them are adequately possessed ; and, accordingly, no experience, and no repetition of acts of volition, can alter such appearances, if the refraction of light, the state of the eye, and the internal faculties, continue the same.

The following appears to me to be a correct mode of ascertaining the limits of the functions of the senses. Whatever perceptions or impressions received from external objects *can be fully renewed* by an act of recollection, cannot depend exclusively upon the senses ; because the organs of sense are not subject to the will, and in the healthy state never produce the impressions which depend upon their constitution, unless excited by an external cause. On the other hand, whatever impressions we are unable to recall, must, for the same reason, depend on the senses alone.

These principles will be best elucidated by examples. In hearing, I call that part of the impression which is occasioned by the vibrations of the air, and of the tympanum, simply noise ; and that part which is dependent on the activity of the brain, a note. When a noise has been made by striking a table with a hammer in our presence, and the sound has ceased, the noise cannot be reproduced by an effort of the will ; because its existence depended on the apparatus of the ear being in a certain state of excitation, which cannot be reproduced by an act of volition. But if an individual is endowed with the internal faculty of Tune, and if a piece of music be played over in his presence, then, after the noise of the instrument has ceased, although he cannot recall that noise, he can with facility reproduce the internal impressions which the notes made upon his mind ; in short, he can enjoy the tune internally anew, by an act of recollection. And as most sounds have something musical in them, he may also recall the *note* made by the hammer in striking the table, but not the *noise*. The power of experiencing the perception

of melody, and of enjoying the impressions which it makes, appears, therefore, to depend on the internal faculty of Tune, while the noise alone depends upon the ear. Hence the perfection of the power of perceiving melody in any individual, is not in proportion to the perfection of the external ear alone, but in proportion to the joint perfection of that organ, and the internal faculty of Tune. Without the auditory apparatus the internal faculty could not receive the impressions; but that apparatus could never of itself produce the perception of melody. Accordingly, we see every day that many individuals enjoy the sense of hearing unimpaired, who have no perception of melody. The same principles applied to the other senses will point out distinctly the precise limit of their functions. We may take an example from the sense of touch. If we embrace a square body with the hands, certain impressions are made on the nerve of touch, called sensations, in consequence of which the mind forms an idea of the figure of the body. Now, we can recall the conception of the figure; but not the sensation which excited it. The conception, therefore, depends on an internal faculty; the sensation on the nerves of touch. The perception, however, depends as entirely on nature as the sensation; and the power of perceiving the form of the body is not acquired by experience.

Dr Spurzheim observes on this head, that, where the *same ideas* are acquired by the instrumentality of *two* or more senses, the ideas cannot possibly be formed by the *senses*; because Nature, so far as man has discovered, never endows *different instruments* with the *same functions*, in the same individual. For example, we can acquire ideas of form by the instrumentality of the sense of Sight, and likewise by means of Touch. Now, from this circumstance alone it is evident, that the conception of figure is formed, not by the eyes, or by the nerves of Touch, because this would be an instance of two separate senses performing the same function; but by an internal faculty, which perceives figure, in consequence of impressions made on either of these two different senses. The impressions made upon the eye are to-

tally different from those made upon the nerves of Touch, but the internal faculty is adapted by nature to both ; and hence the same perceptions are experienced by means of the same faculty, although through the instrumentality of different media. The same function, however, is not performed by distinct senses.

These views of the functions of the senses are illustrated and confirmed by the phenomena which take place when the organs of sense are diseased. For example, when the ear becomes inflamed, it often happens that noises having no external causes are heard ; when too much blood flows into the eye, impressions like those of light are perceived ; when the nerves of Taste become diseased, there is a consciousness of disagreeable savours ; when the nerves of Touch are excited by internal causes, a tickling or disagreeable sensation is felt ; when the muscular system is relaxed by nervous diseases, and flying spasms occur over the body, impressions occasionally arise from these spasmodic affections, so precisely resembling those of touch, that the individual is at a loss to distinguish them.

There is reason to conjecture, that particular parts of the brain receive the impressions transmitted by the different external senses, and that it is by their instrumentality that the gourmand, for instance, recalls the flavour of a particular dish. He cannot reproduce the sensation, which depends on the activity of the nerves of taste ; but he can recall all that is mental in the perception, or that depends on the activity of any part of the brain.

Every one is acquainted with the ridiculous theories which have been framed by philosophers, to account for the phenomena of perception. Aristotle taught, says Dr Reid, " that, as our senses cannot receive external material objects themselves, they receive their species, that is, their images or forms without the matter, as wax receives the form of the seal, without any of the matter of it."¹ The Plato-

¹ *Essay on the Intellectual Powers*, p. 25.

nists differed from Aristotle in maintaining, "that there exist *eternal and immutable ideas*, which were prior to the objects of sense, and about which all science was employed." They agreed with him, however, as to the manner in which these ideas are perceived. Two thousand years after Plato, Mr Locke represented our manner of perceiving external objects, by comparing the understanding to a "closet, wholly shut from light, with only some little opening left, to let in external visible resemblances or ideas of things without." The notion of all these philosophers was, that, from the existence of these images or ideas, the mind inferred, by a process of reasoning, the existence of the external objects themselves.

Dr Reid refuted, by a very simple process, these doctrines. He pointed out merely the fact, that the mind is so formed, that certain impressions, produced by external objects on our organs of sense, are followed by certain sensations; that these sensations are followed by perceptions of the existence and qualities of the bodies by which the impressions are made; and that all the steps of this process are equally involuntary and incomprehensible to us.

It will be perceived, that the doctrine above laid down regarding the functions of the senses, corresponds precisely with the philosophy of Dr Reid.

The organs of each sense are double; and yet the consciousness of all impressions experienced by the mind is single. Various theories have been propounded to account for this fact; but none of them is satisfactory. Dr Gall ventured to give an explanation different from them all. "He distinguishes two states of activity in the organs of the senses, calling one active, the other passive. The functions are passive, if performed independently of the will; the eye, for instance, necessarily perceives the light which falls upon it, and the ear the vibrations propagated to it. Now, we perceive *passively* with both organs, says he; we see with both eyes, hear with both ears, but the active state is confined to one organ, and commonly to the strongest. We see with both

eyes at the same time, but we look with one only; we hear with both ears, we listen only with one; we feel with both hands, we touch with but one, &c.

“There is no doubt that we look with one eye only. In placing a pencil or any other thin body between us and a light, keeping both eyes open, and throwing the axis of vision, the stick, and the light, into a right line, did we look with both eyes, the pencil should occupy the diagonal, and its shadow fall on the nose. But this always falls on one eye, on that which the person, who makes the experiment, ordinarily uses in looking with attention. If the pencil be kept in the same position, and the eye not employed in looking be shut, the relative direction of the objects will seem to remain the same; but if he shut the eye with which he looked, it will be altered, and the pencil will appear removed far from its former place. Again, let any one look at a point but a little way distant, both eyes will seem directed towards it; let him then shut his eyes alternately. If he close the one with which he did not look, the other remains motionless; but if he shut that with which he looked, the other turns immediately a little inwards, in order to fix the point. Moreover, the eyes of many animals are placed laterally, and cannot both be directed at once to the same object. Finally, the gestures of man and animals prove that they look with one eye, and listen with one ear; for they direct one eye or one ear towards the object to be seen or heard.”¹

“Notwithstanding what has been said, Dr Gall’s explanation seems to me,” says Dr Spurzheim, “little satisfactory. Indeed it is very remarkable, that, passively, we perceive, at the same time, the impressions of both organs of any sense, not only if one, but also if different objects impress the two. Even different impressions of different objects may be perceived by both organs of two senses at once. We may, for instance, with both eyes see different objects at the moment that with both ears we hear different sounds. As soon as we

¹ Dr Spurzheim’s *Phrenology*, p. 221.

are attentive, however, as soon as we look or listen, we perceive but one impression. It is impossible, therefore, to attend to two different discourses at once. The leader of an orchestra hears passively all the instruments, but he cannot be attentive except to one. The rapidity of mental action deceives several, and makes them think it possible to attend to different objects at the same moment. It follows, that there is a difference between the active and passive state of the senses ; but whether this difference suffices to explain the single consciousness of every sense, is another question ; I think that it does not.

“First, this explanation would apply only to functions in their active, not at all in their passive state ; and the cause of single consciousness must be the same in both. Further, the active state is not produced by the external senses themselves, any more than voluntary motion by the mere muscles. Some internal power renders the senses active ; they themselves are always passive, and merely propagate external impressions ; they appear active only when something internal employs them to receive and to transmit impressions to the brain. It is therefore probable, that the internal cause which excites only a single organ of the external senses to activity, is also the cause of the single consciousness of different impressions. Dr Gall’s explanation of single consciousness is consequently not only grounded upon an inaccurate notion, but would be far from satisfactory, were the supposition even true.”¹

The mind has no consciousness either of the existence of the organs of sense, or of the functions performed by them. When the table is struck, and we attend to the subject of our own consciousness, we perceive the impression of a sound ; but by this attention we do not discover that the impression has been experienced by the instrumentality of any organ whatever. Hence the perceptions of the mind are always directed to the objects which make the impres-

¹ *Lib. cit.*, p. 222.

sions, and not to the instruments by means of which they are experienced. The instruments perform their functions under Nature's care, and, as already observed, are not subject to the will. We should have been distracted, not benefited, by a consciousness of their action. When they become diseased we obtain this consciousness, and it is painful. Every one must be sensible of this fact, whose eyes or ears have been inflamed.

Dr Spurzheim observes, that "the brain seems to be necessary to every kind of perception, even to that of the immediate functions of the external senses; but it is not yet ascertained, though it is probable, that one fundamental power, inherent in a particular part of the brain, knows and conceives as sensations, all the varied impressions made on the external senses. Some phrenologists think that each external sense has a peculiar portion of brain for this end, and that the combined action of its nerve and of this cerebral part, is necessary to the accomplishment of its functions—that the nerve of taste and a portion of brain, for instance, are necessary to perceive savours; the olfactory nerve and a cerebral part, to distinguish colours, &c. I do not believe that consciousness happens without brain, but I see no reason to surmise that the immediate functions of each external sense require a particular portion of the brain, in order to be recognised as determinate sensations."¹ Dr Caldwell, on the other hand, I think with justice, regards the opinion here expressed by Dr Spurzheim, as at variance with sound physiology,² and the facts which I shall adduce on p. 25, will shew, that, in the case of the sense of sight, there *is* an internal organ in the brain which is connected with vision.

After these general considerations, which apply to all the external senses, a few words may be added on the specific functions of each sense in particular.

¹ Spurzheim's *Phrenology*, p. 257.

² Caldwell's *Elements of Phrenology*, 2d edit. p. 21.

FEELING OR TOUCH.

Dr Spurzheim, and many authors before his day, inferred from pathological facts, that the nerves of motion must be distinct from the nerves of feeling;¹ and subsequent experiments have proved this inference to be well founded. This subject has been treated of on page 91, vol. i. The sense of feeling is continued, not only over the whole external surface of the body, but even over the intestinal canal. It gives rise to the sensations of pain and pleasure; of the variations of temperature; and of dryness and moisture. These cannot be recalled by the will; and I therefore consider them as depending on the sense alone.

This sense is usually supposed to convey to us impressions not merely of heat and cold, pain and pleasure, but also of the resistance met with by the body when in contact with external objects. This, however, is disputed by some authors, who maintain that there is a sense altogether distinct from that of feeling properly so called, and which conveys to the brain a knowledge of the state of the muscles,—in other words, of the degree of contraction or force which they are exerting at the time. The existence of such a sense is distinctly maintained by Dr Thomas Brown. “The feeling of resistance,” says he, “is, I conceive, to be ascribed, not to our organ of touch, but to our muscular frame, to which I have already more than once directed your attention, as forming a distinct organ of sense; the affections of which, particularly as existing in combination with other feelings, and modifying our judgments concerning these (as in the case of distant vision, for example), are not less important than those of our other sensitive organs.”² Mr Simpson, in a very ingenious and elaborate essay on this subject, pub-

¹ See Spurzheim's *Physiognomical System*, 1815, p. 23, and *Phrénologie*, 1818, p. 236. Also his *Anatomy of the Brain*, sect. iii. p. 37, *et seq.*

² *Lectures*, vol. i. p. 496.

lished in *The Phrenological Journal*,¹ has adduced many facts and arguments confirmatory of Dr Brown's opinion. One case communicated to the *Journal*² by a medical gentleman of Edinburgh, seems to him quite decisive. "I was consulted," says he, "by the son of a gentleman in the country, who has had a singular paralytic affection. He lost the power of motion in his arms, but retained sensation acutely, and felt another person's hand cold or warm, as the case might be. [This indicated the *nerves of feeling*, distributed to the skin, to be uninjured, while the *motor nerves*, which convey the mandates of the will to the muscles and cause them to contract, were impaired.] Now, at the distance of three weeks, he has regained the power of motion, but has lost the sense of the state of the muscles so completely, that he cannot adapt his muscular contractions to the purpose he has in view. [The motor nerve had recovered its health, but the *nerve of the sense of resistance* continued powerless.] In seizing a small object, he bears down upon it with his extended hand, gathers it in, and grasps it like a vice, not aware of the disproportion of his effort. He has at the same time the complete command of his muscles as to contraction and relaxation, but wants only the sense of their state." Mr Simpson appears to me to mistake Sir Charles Bell's meaning in regard to the existence of a set of nervous fibres conveying to the brain a knowledge of the state of the muscles. The language of Sir C. Bell is obscure, but physiologists do not admit that he has discovered the functions of more nerves than those of motion and sensation. Mr Noble accounts for the phenomena of the case here cited by Mr Simpson, by the supposition, that "*feeling was defective in the muscles, and perfect in the skin*;" a result not unfrequent in cases of partial paralysis of the sentient nervous filaments. See *Phren. Journ.*, vol. xii. p. 206.

¹ Vol. ix. p. 193; see also his other papers there referred to, particularly that on the sense of equilibrium, vol. iv. p. 266. Sir George Mackenzie has commented on Mr Simpson's essay mentioned in the text, in vol. ix. p. 349.

² Vol. iv. p. 315.

Hunger and thirst seem to constitute a peculiar sense, of which the stomach and throat, and nerves connecting them with the brain, are the external organs, and the organ of Alimentiveness the cerebral part in which the sensations are experienced.¹

TASTE.

THE function of this sense is to produce sensations of taste alone ; and these cannot be recalled by the will. The tongue is endowed with three functions, Motion, Feeling, and Taste, one of which may be lost, and the other two be retained. It is not well ascertained which is the proper gustatory nerve. Mr Daniel Noble of Manchester has observed a striking case in which, "whilst the common sensation of one half of the tongue was annihilated, the sense of taste was unimpaired." See London Medical Gazette, vol. xv. p. 120, and vol. xvii. p. 257. In the Medical Gazette for December 1835, there is a paper by Mr Bishops, detailing the history of a case of facial paralysis, wherein a *post mortem* examination exhibited "the whole of the fifth nerve completely destroyed, whilst both the eye and nostril of that side had lost their sense of touch, retaining the faculties of vision and smell." We may judge of the qualities of external bodies by means of the impressions made on this sense ; but to form ideas of such qualities is the province of the internal faculties. Some phrenologists say that the lips, the interior of the cheeks, and the palate also, are sensible to the savours of bodies ; but Dr Vimont denies this on the authority of experiments performed in his own person.

¹ See vol. i. p. 278 of this work ; and a paper on Alimentiveness, by Mr Robert Cox, in *The Phrenological Journal*, vol. x.

SMELL.

By means of smell the external world acts upon man and animals from a distance. Odorous particles are conveyed from bodies, and inform sentient beings of the existence of the substances from which they emanate. The chief organ of smell is the olfactory nerve. It is ramified on the upper and middle spongy bones of the nose. It is not ramified on the inner surface of the sinuses. A branch of the fifth pair, or sensitive nerve, is ramified also on the spongy bones and inner surface of the nostrils, and gives the sensation of pain from irritants. Magendie cut the olfactory nerve, and held ammonia to the nose of the animal, and because it sneezed, he thought that the fifth pair, and not the olfactory nerve, was the essential nerve in smell; but the ammonia acted as an irritant to the nerve of feeling, and not as a smell. When the fifth pair is cut, smell after a time is lost, because the loss of sensation is followed by inflammation of the mucous membrane, the integrity of which is necessary to smell. The functions of smell are confined to the producing of agreeable or disagreeable sensations, when the organ is affected. These cannot be reproduced by an effort of the will. Various ideas are formed of the qualities of external bodies, by the impressions which they make upon this sense; but these ideas are formed by the internal faculties of the mind.

HEARING.

In new-born children, this sense is not yet active; but it improves by degrees, and in proportion as the vigour of the organ increases. It is a very common opinion, that music, and the faculty of speech, are the result of the sense of hearing; but this notion is erroneous.

As already mentioned, the auditory apparatus, being excited to activity by an external cause, produces only the im-

pression of noise ; and here its functions terminate. If, besides, the faculty of Tune be possessed by any individual, melody in sounds is perceived by that faculty. If the faculty be not possessed, such perception cannot exist. Hence, among birds, although the female hears as well as the male, yet the song of the male is very much superior to that of the female, and in him the organ of Tune is larger. Among mankind, also, many individuals hear, and yet are insensible to melody. Thus, both in man and other animals, there is no proportion between the perfection of hearing, and the perfection of the power of perceiving melody. If it be part of the function of the auditory apparatus to give the perception of melody, how can it happen that, in one individual, the apparatus can perform only one-half of its function, while in others it performs the whole ? This is not like Nature's work. Farther, hearing cannot produce music ; because the auditory apparatus is excited only by sounds which are already produced ; while the first musician must have begun to produce music before he had heard it, and therefore he must have done so from an internal impulse of the mind. Singing-birds also, which have been hatched by strange females, sing naturally, and without any instruction, the song of their species, as soon as their internal organization is active. Hence the males of every species preserve their natural song, though they have been brought up in the society of individuals of a different kind. Hence also, musicians who have lost their hearing, continue to compose. They possess the internal faculty ; and it being independent of the auditory apparatus, conceives the impressions which different sounds naturally produce, long after the ear has ceased to be capable of allowing these sounds to be heard anew. Hence likewise, deaf and dumb persons have an innate feeling of measure and cadence. Though, however, hearing does not produce music, yet, without an auditory apparatus fitted to receive the impressions made by tones, melody could not be perceived ; and, unless that apparatus had been once possessed, neither could melody be

produced, because the individual could not judge of the impressions which the sounds he made were fitted to make upon those who hear.

Another common opinion is, that hearing alone, or hearing and voice jointly, produce the faculty of speech. This error will be refuted, by considering in what any language consists, and how every language is produced. Language has been divided into two kinds, natural and artificial. In both kinds, a certain sign is used to indicate to others certain feelings or ideas of the mind. Various motions of the body, and expressions of the countenance, the moment they are beheld, indicate certain emotions and sentiments. In this case, the expression of the countenance, or the motion of the body, is a sign fitted by nature to excite in us the perception of the feeling. The meaning of the sign is understood by all men, without instruction or experience. It is obvious that its power, in this case, to excite the perception, does not depend either upon hearing or voice ; for neither is employed in producing it : but that the effect is an ultimate fact of our constitution, which must be referred to the will of the Creator. Besides these signs, however, we make use of many others to communicate our thoughts, which have no original connexion with the things signified. For example, the word *table* has no necessary connexion with the thing upon which I now write. How, then, does the word happen to indicate the thing ? The internal faculties first conceive the object : having done so, they wish to fix upon a sign by which that conception may be recalled or communicated. They, therefore, *employ the organs of voice* to make the sound which we express when we utter the word *table*. The thing itself being pointed out, and the sound being uttered at the same time, the meaning of the sound becomes understood ; and hence every time it is pronounced, the idea of the thing is suggested. But we are not to suppose that the auditory apparatus, or the organs of voice, conceive the idea of the table. This is done by the internal faculties alone ; and these merely make use of the organs of voice as instruments for producing

a sign. Hence the reason why monkeys do not speak is, not that they want the sense of hearing and organs of voice, but that they have not the internal faculty which fixes upon artificial signs to indicate the conceptions formed by the mind.

The proper function, then, of the sense of hearing, is confined to the production of the impressions which we call sounds: yet it assists a great number of internal faculties.

The auditory nerve has a more intimate connexion with the organs of the moral sentiments, than with those of the intellectual faculties.

SIGHT.

THIS last of the senses, is the third of those which inform man and other animals of the existence of remote objects by means of an intermedium; and the intermedium, in this instance, is light.

This sense has been said to acquire its functions by touch or by habit. Bishop Berkeley is supposed by the metaphysicians to have discovered the true theory of vision, and the result of his investigation is, "that a man born blind, being made to see, would not at first have any idea of distance by sight. The sun and stars, the remotest objects as well as the nearest, would all seem to be in his eye, or rather in his mind."¹ Dr Reid, and some other philosophers, have written ingenious disquisitions, to shew that our perceptions of distance, figure, and motion, are acquired. "Philosophy," says Mr James Mill, "has ascertained that we derive nothing from the eye whatever but sensations of colour; that the idea of extension, in which size, and form, and distance are included, is derived from sensations, not in the eye, but in the muscular part of our frame. How, then, is it that we receive accurate information by the eye, of size, and shape, and distance? By association merely."² These speculations pro-

¹ Stewart's *Dissertation*, p. ii. 109.

² *Analysis of the Phenomena of the Human Mind*, vol. i. ch. iii. p. 73.

ceed on the principle, that Nature has done little for man, and that he does a great deal for himself, in endowing himself with perceptive powers. But vision depends on the organization of the eye ; and is energetic or weak, as the organization is perfect or imperfect. Some animals come into the world with perfect eyes ; and these see perfectly from the first. The butterfly and honeybee fly at the first attempt, through fields and flowery meadows ; and the young partridge and chicken run through stubble and corn-fields. The sparrow, in taking its first flight from the nest, does not strike its head against a wall, or mistake the root of a tree for its branches ; and yet, previously to its first attempt at flight, it can have no *experience* of distance.

On the other hand, animals which come into the world with eyes in an imperfect state, distinguish size, shape, and distance, only by degrees. This last is the case with newborn children. During the first six weeks after birth, their eyes are almost insensible to light ; and it is only by degrees that they become fit to perform their natural functions. When the organs are sufficiently matured, however, children see, without habit or education, as well and as accurately as the greatest philosopher.

Indeed, as has been formerly mentioned, the kind of perception which we enjoy by means of the eyes, is dependent solely on the constitution of the eyes, and the relation established between them and the refraction of light. So little power has experience to alter the nature of our perceptions, that even in some cases where we discover, by other senses, that the visible appearance of objects is illusive, we still continue to see that appearance the same as before. The greatest philosopher, standing at one end of a long alley of trees, cannot see the opposite rows equally distant from one another at the farther end, as they appear to be at the end nearest to him, even after experience has satisfied him that the fact really is so. He must see according to the laws of perspective, which make the receding rows appear to approach ; and there is no difference in this respect between his percep-

tions and those of the most untutored infant. In like manner, a philosopher, on looking into a concave spoon, cannot see his right hand upon the right side, and his left upon the left, even after he has learned, by the study of the laws of optics, that the image of himself, which he sees in the spoon, is reversed.

So confident, however, is Mr Stewart in the opinion that we learn to see, and do not see by nature, that, after remarking that "Condillac first thought that the eye judges *naturally* of figures, of magnitudes, of situations, and of distances: he afterwards was convinced that this was an error, and retracted it,"—he adds, "Nothing short of his own explicit avowal could have convinced me, that a writer of such high pretensions, and of such unquestionable ingenuity as Condillac, had really commenced his metaphysical career under so gross and unaccountable a delusion." Mr Stewart also expresses his surprise, that Aristotle should maintain "that it is not from seeing often or from hearing often, that we get these senses; but, on the contrary, instead of getting them by using them, we use them because we have got them."

It is worth while to inquire into the grounds on which the metaphysicians maintain such extraordinary opinions. They are two: *first*, The fact that new-born children miss the object they mean to seize, and shew clearly that they do not accurately appreciate size, distance, and relative position; and *secondly*, The fact that a blind man couched by Chesselden, on the first influx of light to the retina, saw all external objects as situated in his eye, and after a few weeks perceived distance and magnitude like ordinary persons. From these facts the metaphysicians infer that the human being does not naturally perceive distance, size, and form, but learns to do so by experience. The answers are obvious. The eye in the child is not perfect till six weeks after birth. The eye newly couched is not a sound eye instantly, nor do the muscles and various parts which had lain dormant for thirty years, act with perfect effect at the first attempt, after the

irritation of a painful operation ; and, even admitting that the eye was perfectly sound, the internal organs which perceive distance are not so. By disuse, every organ of the body becomes unfitted for the due performance of its functions. In civilized nations, the muscles of the external ear, being prevented, by the head-dress, from acting during childhood, not only lose all contractile power, but almost dwindle into nothing. In the savage state, the power of moving the ear is often as perfect in man as in the lower animals. After long confinement of a limb for the cure of fracture, the muscles diminish in size, and unfitness for action is observed. In the same way, during blindness, the organs which judge of colour and distance, are never called into action, and therefore become, to a certain extent, unable to execute their functions, and it is only by degrees that they acquire sufficient energy to do so. In visiting several asylums for the blind, I observed that the organ of Colouring was imperfectly developed in those patients who had lost their sight in infancy. If in middle life their vision had been restored by an operation, the organ of Colouring would not have become at once as perfect in size and activity as if no previous impediment to the exercise of its function had existed.

Dr Thomas Brown, whose acuteness I have repeatedly had occasion to praise, admits that the lower animals perceive distance intuitively ; and although, on the whole, he agrees in the opinions of Berkeley, Reid, and Stewart, yet he considers the opposite opinion, which the phrenologists maintain, as far from ridiculous. "It is," says he, not more wonderful, *a priori*, that a sensation of colour should be *immediately followed* by the notion of a mile of distance, than that the irritation of the nostril, by any very stimulant odour, should be immediately and involuntarily followed by the sudden contraction of a distant muscular organ, like the diaphragm, which produces, in sneezing, the violent expiration necessary for expelling the acrid matter.¹

¹ *Lectures*, vol. ii. p. 69.

It is very true that Nature does not give us intuitive perceptions of the number of feet or inches which any object is distant from us ; because these are artificial measures, with which nature has nothing to do. But when two objects, equal in size, are presented to the eye, the one being twice as far distant as the other, the mind has an intuitive perception that they are not equally near, unless the external or internal organs, or both, be deficient or deranged.

What, then, are the true functions of the eye ? No external organ of sense *forms ideas*. The eye, therefore, only receives, modifies, and transmits the impressions of light ; and here its functions cease. Internal faculties form conceptions of the figure, colour, distance, and other attributes and relations of the objects making the impression : and the power of forming these conceptions is in proportion to the perfection of the eyes and the internal faculties jointly, and not in proportion to the perfection of the eyes alone.¹

The anterior pair of the *corpora quadrigemina* seem to have an intimate connection with the sense of sight, and indeed to form part of its organic apparatus. Soemmering states that he found them atrophied in blind horses, and Dr Gall made similar observations. Flourens found " that the removal of one of the two quadrigeminal tubercles, after a convulsive action which immediately ceases, produces blindness of the opposite eye, and an involuntary whirling round ; that of the two tubercles renders the cecity complete, and the whirling more violent and more prolonged. Yet the animal retains all its faculties, and the iris is still contractile. The entire extirpation or section of the optic nerve alone paralyzes the iris, from which circumstance he concludes that extirpation of the tubercle produces the same results as a section of the nerve ; that this tubercle is, as regards vision, only a conductor ; and that the cerebral lobe alone is the

¹ See two papers by Dr A. Combe, " On the Functions of the sense of Sight, considered chiefly in its relations to ideas of Form, Colour, Magnitude, and Distance ;" *Phen. Journ.* vol. iv. p. 608, and vol. v. p. 286.

limit of the sensation, and the place where it is consummated by becoming converted into perception."—*Cuvier's Report to the Royal Academy of Sciences of the Institute on Flouren's Memoir*, 1822.

"In regard to ocular spectra," says Dr Abercromby, "another fact of a very singular nature appears to have been first observed by Sir Isaac Newton ; namely, that when he produced a spectrum of the sun by looking at it with the right eye, the left being covered, upon uncovering the left, and looking upon a white ground, *a spectrum of the sun was seen with it also*. He likewise acquired the power of recalling the spectra after they had ceased, when he went into the dark, and directed his mind intensely, '*as when a man looks earnestly to see a thing which is difficult to be seen.*' By repeating these experiments frequently, such an effect was produced upon his eyes, 'that, for some months after,' he says, 'the spectrum of the sun began to return, as often as I began to meditate upon the phenomena, even though I lay in bed at midnight with my curtains drawn.' " These facts seem to shew that it is not in the retina that visual impressions become perceptions, but in the brain itself.

Dr Vimont found in fourteen old horses which were one-eyed, a diminution of the anterior corpus quadrigeminum opposite to the lost eye ; in two of them the atrophy was complete. To obtain farther light on this subject, he put out the left eyes of four rabbits, and the right eyes of other four ; and deprived another of both eyes. Ten months afterwards they were all put to death. In the four deprived of the left eye, he found the anterior corpus quadrigeminum on the right side much smaller than that on the left, while the opposite appearance presented itself in those which had lost the right eye. In the blind rabbit both of the anterior corpora were much smaller than the sound one in any of the other rabbits. Compared with the corresponding parts in a rabbit of the same litter, whose eyes were sound, they presented a very perceptible difference of volume. Dr Vimont adds : " M. Magendie has told me, that he had observed a diminution of

a bigeminal body in birds, a short time after having put out one of their eyes. I have repeated the experiment; it is exact; the diminution even takes place a great deal sooner than in quadrupeds."¹ He mentions farther, that, according to the observations of Wenzel,² there is atrophy of the optic thalami in blindness, and when that state is of long continuance the thalami become narrower and flatter. These facts account satisfactorily for Chesselden's patient not being able to see perfectly, immediately after being couched.

Dr Vimont mentions also that in the nocturnal birds whose brains he had dissected, he found the bigeminal tubercles small in proportion to the brain, while they were large in proportion to the brain in diurnal birds and in herbivorous animals. See Vimont, tome ii., *voce, de la vue*.³

The senses may be exercised, and their powers greatly improved, by exercise. The taste of the gourmand is more acute than that of the peasant, and the touch of the artisan than that of the ploughman.

GENUS II.—INTELLECTUAL FACULTIES WHICH PROCURE KNOWLEDGE OF OBJECTS, THEIR QUALITIES, AND RELATIONS.

THE faculties now to be treated of take cognizance of the existence and qualities of external objects. They corres-

¹ *Treatise on Human and Comparative Phrenology*, i. 310; French edit. p. 298

² *De Penit. Struct. Cerebri*, p. 125.

³ Dr W. Clay Wallace, of New York, has discovered "fibres in the retina. They diverge from the base of the optic nerve, and surround the foramen of Soemmering at the extremity of the eye. Sir John Herschel had supposed such fibres to be requisite in the explanation of the theory of vision, and it is therefore doubly interesting to find that they have been discovered."—*Sir David Brewster's Report of the 8th Meeting of the British Association*.

pond, in some degree, to the Perceptive Powers of the metaphtysicians; and form ideas. Their action is attended with a sensation of pleasure, but (except in the case of Tune) it is weak compared with the emotions produced by the faculties already treated of. In judging of the size of these organs, the rules laid down on page 140 require to be particularly attended to. In addition to what is there stated, I may remark that the most prominent part of the zygomatic arch will be found at the point where the two bones that compose it join. I cannot sufficiently impress on the student of phrenology the importance of attending to this mode of ascertaining the size of the anterior lobe of the brain. Let him compare the masks of Canova, Napoleon, and Franklin, with those of Hare the murderer, or even with men of average talent, and he will discover the extraordinary length of this lobe before the point indicated in men of great intellectual powers.

The organs of the intellectual faculties are small, but active. If they had been as large as those of the propensities, we should have been liable to intellectual passions. The comparative calmness of our reasoning processes is probably the result of the small size of these organs.

22.—INDIVIDUALITY.

THIS organ is situated in the middle of the lower part of the forehead, immediately above the top of the nose. When large it produces breadth, projection, and descent between the eye-brows, at that part; when small, the eye-brows approach closely to each other, and lie in a horizontal line. It is very large in the portrait of Michael Angelo; in which also the anterior lobe in general, estimated by the rule before mentioned, appears to be very largely developed.

MICHAEL ANGELO.



In surveying the external world, we may consider first, objects simply as existences, such as a rock, a horse, a tree, a man ; these are designated by substantives ;—in the next place, the properties and relations of things which exist, such as their form, size, weight, and colour. After these, we may notice their active phenomena ; the rock falls, the horse runs, the tree grows, the man walks—these actions are designated by active verbs. As size, form, weight, and colour, are adjuncts of physical existence, time is an adjunct of action. We have no knowledge of the substance or essence of any object. We know only its qualities. Yet we have an intuitiv conviction that substance exists, in which the qualities which we ascribe to matter inhere. In-

dividuality gives us this conviction.¹ Dr Vimont remarks that if several persons look at an object, all will recall it as a thing that exists; but they will recollect with very different degrees of distinctness, its different qualities, such as its colour, its size, its density, the arrangement of its parts, and so forth; which shews that we can form an idea of the existence of an object with very imperfect notions of its qualities, and hence that these perceptions must be referable to separate organs.

Individuality, then, renders us observant of objects which exist; and forms the class of ideas represented by substantive nouns when used without an adjective, as *rock, man, horse*. Its functions were ascertained by Dr Spurzheim. It gives the desire, accompanied, with the ability, to know objects as mere existences, without regard to their modes of action, or the purposes to which they may be subservient. Individuals in whom it is large, will observe and examine an object with intense delight, without the least consideration to what purpose it may be applied—a quality of mind which is almost incomprehensible to persons in whom this organ is small and Causality large. It prompts to observation, and is a great element in a genius for those sciences which consist in a knowledge of specific existences, such as natural history. It tends to render all the ideas entertained by the mind specific. A student in whom this organ is small, and the reflecting organs large, may have his mind stored with general principles of science, and with abstract ideas, but will experience much difficulty in reducing them into precise and specific forms. Another, in whom this organ is large, will have all his knowledge individualized: if he hear lectures or conversation in which general views chiefly are presented,

¹ In like manner, we can form no conception of the element which constitutes efficiency in a cause. Yet when we perceive a cause operating, we have an intuitive conviction that something which constitutes efficiency or power *does exist* in the object which we see acting. It is probable that our faculties are not calculated to comprehend more than the existence of substance and efficiency.

he will render them specific for himself ; but unless his reflecting organs also be large, he will be prone to miss the essential principle, to seize upon a mere illustration or some palpable concomitant circumstance, and to embrace this as his conception of it. Such persons are learned, and, owing to the store of facts with which their memories are replenished, the great definiteness and precision of their ideas, and the readiness with which they command them, they often take a lead in public business : but if their reflecting organs be deficient, they shew no depth or comprehensiveness of understanding ; they do not advance the principles of science, and rarely acquire a permanent reputation.

In common life, a great development of this organ confers a talent for observation, curiosity to know, and aptitude for acquiring knowledge of details. The character of *Miss Pratt*, as drawn by the author of *The Inheritance*, a novel, is a personification of Individuality, when predominantly powerful, and not directed by higher faculties.¹ "But people who make use of their eyes," says this author, "have often much to see, even between two doors ; and in her progress from the hall door to the drawing-room, *Miss Pratt* met with much to attract her attention. True, all the objects were perfectly familiar to her ; but a real *looker*, like a great genius, is never at a loss for a subject—things are either better or worse since they saw them last—or if the things themselves should happen to be the same, they have seen other things, either better or worse, and can therefore either approve or disapprove of them. *Miss Pratt's* head then turned from side to side a thousand times as she went along, and a thousand observations and criticisms about stair-carpets, patent-lamps, hall-chairs, slab-tables, &c. &c. &c. passed through her crowded brain."—"At length *Miss Pratt* and *Mr Lindsay* were announced, and thereupon entered *Miss Pratt* in a quick paddling manner, as if in all haste to greet her friends."—" *Miss Pratt* then appeared to her (*Gertrude*)

¹ See *The Phrenological Journal*, ii. 65.

a person from whom nothing could be hid. Her eyes were not by any means fine eyes—they were not reflecting eyes—they were not soft eyes—they were not sparkling eyes—they were not penetrating eyes; neither were they restless eyes, nor rolling eyes, nor squinting eyes, nor prominent eyes—but they were active, brisk, busy, vigilant, immoveable eyes, that looked as if they could not be surprised by any thing—not even by sleep. They never looked angry, nor joyous, or perturbed, or melancholy, or heavy; but morning, noon, and night they shone the same, and conveyed the same impression to the beholder, viz. that they were eyes that had a look—not like the look of Sterne's monk, beyond this world—but *a look into all things on the face of this world*. Her other features had nothing remarkable in them; but the ears might evidently be classed under the same head with the eyes—they were something resembling rabbits'—long, prominent, restless, vibrating ears, for ever listening, and never shut by the powers of thought."

From communicating this talent of observation, Individuality greatly assists Imitation in promoting mimicry. The organ was large in Garrick and Matthews; and it is obvious that accurate observation of the manners and appearances of men was a fundamental element in a talent such as theirs, of portraying on the stage living individuals in their minutest peculiarities.

When the organ is deficient, the individual fails to observe things that exist around him; he may visit a house, and come away without knowing what objects were in the rooms. A person thus deficient walks in the streets, or through the country, and observes nothing. In short, although the external senses are in perfect health,—owing to the feebleness of this observing power, they are not called into activity for the purpose of acquiring knowledge.

This organ, when large, prompts to discovery by observation of things which exist. Persons so constituted do not seek to arrive at new truths by reasoning, but inquire of nature, of men, of books for information; and hence, many

brilliant physical discoveries have been made by persons largely endowed with these and the other perceptive organs, whose reflecting faculties have not surpassed mediocrity. Since Bacon's rules of philosophizing have been duly appreciated and become fashionable, science has been extensively and successfully cultivated by a class of minds, which, while the method of speculative reasoning prevailed, was excluded from such pursuits. This class is composed of persons in whom the organ under consideration greatly predominates over those of the reflecting powers. Such individuals are constituted by nature to become observers; and natural history, particularly botany,¹ anatomy, mineralogy, and even chemistry, are great departments of knowledge fitted for the exercise of their peculiar talent. The substance of these sciences consists in a knowledge of the existence, appearances, and properties of natural objects, as *facts*; and we need not be surprised to meet with eminent professors of them, in whose heads the reflecting organs are greatly inferior to the knowing. When Individuality is small, and the reflecting organs large, the possessor forms vague conceptions of things that exist, and of facts.

To the artist this organ is of great importance. It enables him to give a definite character to his conceptions, and confers on him a capacity for attending to details. In the pictures of an artist in whose head Individuality is deficient, there is an abstractness of conception, and a vagueness of expression, that greatly detract from their effect. In the works of an individual in whom these organs are large, every object appears full of substance and reality; and if he paint portraits, the spectator will be so impressed with their individuality, that he will be apt to fancy himself acquainted with the originals.

Persons who excel at whist, generally possess Individuality and Eventuality large. If both of the organs be deficient, eminence will not easily be attained in this game.

¹ See Letter by Mr Hewett Watson, on the heads of botanists, *Phren. Journ.*, vol. viii. p. 101.

This faculty, combined with that of Form, gives the tendency to personify notions and phenomena, or to ascribe existence to mere abstractions of the mind, such as Ignorance, Folly, or Wisdom.

The organ was large in Sheridan and Sir Walter Scott. It is small in the Scots in general ; it is larger in the English, and still larger in the French.

In adults, the frontal sinus is generally present at the situation of this organ, and this throws a difficulty in the way of judging of its size in them. The function, however, is ascertained by observing young persons in whom the sinus is not formed, and by the negative evidence ; that is, when the external part of the skull at the top of the nose is narrow, contracted, and depressed, the portion of brain below is necessarily small, and then the mental power is found invariably weak. The concomitance of large size and great power in young persons, in whom there is no sinus, and of deficiency of size and feebleness of power in all ages, proves the function. In mature age the sinus may, in certain cases, throw a difficulty in the way of determining the exact size of the organ, but this does not prevent the possibility of ascertaining the function by observations made in other cases in which this obstacle does not exist. See vol. i. p. 127-8-9.

The organ and the mental qualities conferred by it are established ; but the metaphysical analysis of the faculty seems to require farther elucidation.¹

¹ Mr Scott has published an elaborate essay on Individuality in the *Phrenological Journal*, vol. γ. p. 226. See also remarks on it by Mr Schwartz of Stockholm, vol. vi. p. 328 ; and by Mr Hewett Watson, vol. vii. p. 213.

23.—FORM.

DR GALL was struck with the circumstance, that certain persons and animals recognise, with the greatest facility, individuals whom they have not seen for years, and even then seen only in passing. In himself, this faculty was weak, and frequently, on rising from table, he had no recollection of the person who had sat next to him, so as to be able to recognise him again in society ; and he was, in consequence, exposed to many painful embarrassments and awkward mistakes. Being desired to examine the head of a young girl who had an extreme facility of distinguishing and recollecting persons, he found her eyes pushed laterally outward, and a certain squinting look : after innumerable additional observations, he spoke of an organ of the knowledge of persons.

The organs lie on the two sides of, and contiguous to, the *crista galli*. When small, the orbital plate approaches close to the sides of the crest, and then the external width across the nose from eye to eye is small : when large, there is a considerable space between the orbital plate and the crest, and a great external breadth across the nose ; in general there is also a depression of the internal part of the eyes.

The organ is generally large in very young children ; and at that age they are extremely observant of forms.

In some instances, in adults, the frontal sinus is found at the situation of this organ, but it rarely leads to difficulty in observing its size. The organ was large in King George III., and, combined with his large organ of Individuality, gave him that extraordinary talent for recollecting persons for which he was celebrated. It is very moderately developed in Curran.

Dr Gall observes, that those individuals who never bestow more than a superficial attention on phenomena, and

who have always reasonings, or at least sophisms, ready in explanation of every fact, pretend that a deficiency, such as he experienced in recognising persons, is owing to the eyes; that, in such cases, the vision is indistinct, or there is a squint. His personal experience, he adds, affords a refutation of this hypothesis; for he never had a squint, and his vision was particularly acute and clear.¹ Often children from three to five years of age have a great memory of persons. Some dogs, at the distance of years, recognise an individual whom they have only once seen; while others, after a few days' absence, do not know again persons whom they have seen frequently. Monkeys, dogs, horses, elephants, and even birds, distinguish, with greater or less facility, their master,

¹ Dr Gall mentions, that although he could neither paint nor design, he was able to seize with great facility the numerous forms of the head; which statement is at variance with great deficiency in the organ of Form; but from the general tenor of his observations, it appears that his power of distinguishing forms was not so great as he imagined it to be. Dr Spurzheim gives the following note in his reprint of the article Phrenology in the 3d Number of *The Foreign Quarterly Review*:—

“The phrenological faculties of Dr Gall’s infantile genius were, Individuality, Eventuality, and Causality, in an eminent degree.

“It has been remarked as singular, that Dr Gall should have been the first founder of this new science, whilst he could not recollect persons after dinner, though they had been near him at table, and since he could not find his way again to places where he had been before; or, in phrenological terms, since he had Form and Locality very small. Those who make that remark, can neither know the proceeding of Dr Gall, nor understand the true meaning of the two phrenological denominations. Dr Gall compared the size of individual cerebral portions with certain talents or characters eminent in any way; and he was not deficient in the power of perceiving size and its differences. The want of Locality did not prevent him from making discoveries, any more than the want of seeing certain colours hinders any one to cultivate geometry or mathematics in general. Dr Gall’s deficiency in Form explains why he constantly attached himself to isolated elevations and depressions on the surface of the head, rather than to their general configuration, and left this rectification of Phrenology to my exertions; he, nevertheless, has the great merit of having discovered first, certain relations between cerebral development and mental manifestations.”

and those who have been kind or cruel to them, among a thousand. All the animals which belong to a herd, and also all the bees in a hive, from 20,000 to 80,000 in number, know each other. When a stranger attempts to introduce himself, they drive him away, or kill him.¹

Dr Spurzheim has analyzed the mental power connected with the organ in question, and considers it in the following manner: "To me," says he, "there seems to exist an essential and fundamental power, which takes cognizance of configuration generally, and one of whose peculiar applications or offices is recollection of persons: for persons are only known by their forms. I separate the faculty which appreciates configuration from that of Individuality, since we may admit the existence of a being without taking its figure into consideration. Individuality may be excited by every one of the external senses, by smell and hearing, as well as by feeling and sight; while the two latter senses alone assist the faculty of configuration. It is this power which disposes us to give a figure to every being and conception of our minds: that of an old man, to God; to Death, that of a skeleton; and so on. The organ of Configuration is situated in the internal angle of the orbit; if large, it pushes the eye-ball towards the external angle a little outwards and downwards. It varies in size in whole nations. Many of the Chinese I have seen in London had it much developed. It is commonly large in the French, and bestows their skill in producing certain articles of industry. Combined with Constructiveness, it invents the patterns of dress-makers and milliners. It leads poets to describe portraits and configurations, and induces those who make collections of pictures and engravings to prefer portraits, if they have it in a high degree. It is essential to portrait-painters. Crystallography also depends on it; and to me it appears that conceptions of smoothness and roughness are acquired by its means."² I

¹ *Sur les Fonctions du Cerveau*, tome v. p. 1, 2, &c.

² *Phrenology*, p. 274.

have met with numerous facts, in proof of this faculty and organ.

In *The Phrenological Journal*, vol. viii. p. 216, the case of the late Dr Robert Macnish is recorded, who always associated a particular form with certain words. "Words," says he, "are associated in my mind with shapes, and shapes with words; a horse's mouth, for instance, I always associate with the word *smeer*. As instances of the association of words with forms, take the following examples:

" *Combe* resembles



" *Cox* resembles



" *Simpson* resembles



The late Mr Thomas Allan of Edinburgh, who had a passion for mineralogy from early youth, had a very large development of this organ, as also of Comparison. I have seen many children who were expert at cutting figures in paper possess it, with the organs of Imitation and Constructiveness, large. A gentleman called on me in whom Constructiveness, Locality, and other organs which go to form a talent for drawing landscape and botanical figures are large, but in whom Form is deficient; and he said, that he could not, except with great difficulty and imperfection, draw or copy portraits.

The celebrated Cuvier owed much of his success as a comparative anatomist to this organ. De Candolle mentions that "his memory was particularly remarkable in what related to forms, considered in the widest sense of that word; the figure of an animal, seen in reality or in drawing, never left his mind, and served him as a point of comparison for all similar objects." This organ, and also the organs lying

along the superciliary ridge, were largely developed in his head.

Mr Audubon says of the late Mr Bewick, the most eminent wood-engraver whom England has produced—"His eyes were placed farther apart than those of any man I have ever seen."¹

Children in whom the organ of Form is very large, learn to read with great facility, even in languages of which they are totally ignorant, and although the book be presented to them upside down.²

In the casts of two Chinese skulls in the Phrenological Society's collection, the organ is greatly developed; and it is said to be large in the Chinese in general. Their use of characters for words may have sprung from the great size of this organ, which would enable them easily to invent and remember a variety of forms. In a collection of portraits of eminent painters, presented by Sir G. S. Mackenzie to the Society, the organ appears uncommonly large in those who excelled in portrait-painting.

The metaphysicians do not admit a faculty of this kind.

Dr Gall remarks, that some authors present the reader with descriptions of the persons whom they introduce, drawn with great minuteness and effect. Montaigne and Sterne, for example, are distinguished for this practice, and in the portraits of both the organ of Form is conspicuously large.

I subjoin a copy of the portrait of William Dobson, an English painter in the reign of Charles I., in whom the width between the eyes at this organ (23) is very great. He was rather celebrated for portraits.

¹ Audubon's *Ornithological Biography*, vol. iii. p. 300.

² See two illustrative cases in *The Phrenological Journal*, vol. viii. p. 65, and vol. ix. p. 344; also vol. xi. p. 407. See effects of Mesmerism on the organ in vol. xv. p. 366-7.

WILLIAM DOBSON.



Lord Jeffrey, in the article "Beauty" in the *Supplement to the Encyclopædia Britannica*, agrees with another author, whom he quotes, Mr Knight, in maintaining, that "there are no *forms* that have any *intrinsic beauty*, or any power of pleasing or affecting us, *except through their associations or affinities to mental affections*, either as expressive of fitness and utility, or as types and symbols of certain moral or intellectual qualities, in which the sources of our interest are obvious." From these observations one would suspect Lord Jeffrey and Mr Knight to be endowed with small organs of Form themselves, and that they have taken their own experience as that of mankind in general. The notion which Lord Jeffrey has erected into a fundamental principle, and on which his whole essay on Beauty is built,—that external objects possess no qualities of their own fitted to please the mind,

but that all their beauty and interest arise from human feelings which we have associated with them,—is contradicted by daily experience. The mineralogist, when he speaks of the beauty of his crystals, has a distinct and intelligible feeling to which the name of Beauty is legitimately applied; and yet he connects no human emotions with the pyramids, and rhombs, and octagons, which he contemplates in the spars. Persons in whom this organ is large, declare that they enjoy a perceptible pleasure from the contemplation of mere form, altogether unconnected with ideas of utility and fitness, or of moral or intellectual associations; and that they can speak as intelligibly of elegant and inelegant, beautiful and ugly shapes, regarded merely as shapes, as of sweet and bitter, hard and soft.

The organ is regarded as established.

24.—SIZE.

THERE is an essential difference between the idea of size and that of form; and the faculty of distinguishing form differs from that of distinguishing size. The form may be the same, and the size different. One of these kinds of knowledge may exist without the other; and there is no proportion between them. Besides, as formerly mentioned, the nerves of touch, and the organs of sight, do not form ideas of any kind; so that the power of conceiving size cannot be in proportion to the endowment of them. Dr Spurzheim, therefore, inferred by reasoning, that there must be a faculty, the function of which is to perceive size; and observation has proved the soundness of his conclusion. The situation of the organ indicated by him has been found correct, and it is regarded as ascertained. In dissecting the brain, the convolutions which constitute Size and Form are found intimately connected. The organ is placed at the internal extremity of the arch of the eyebrow, on the two sides of the lower portion of Individuality.

Dr Vimont admits the organ of Size, and agrees with Dr

Spurzheim in regard to its situation at the internal angles of the orbits of the eyes ; but he conceives that he has discovered a separate organ for taking cognisance of distance, situated between Size and Weight. He divides Dr Spurzheim's organ of Size into two, or nearly so, and calls the portion next the nose the organ of Size, and that next to Weight, the organ of Distance. I have not observed facts sufficient to enable me to pronounce an opinion on this division of the organs—reason seems to be opposed to it. The size of an object is estimated by the distance between the lines formed by its different surfaces ; and the distance between two objects is estimated by the extent of space intervening between the nearest surfaces of each. We name our perceptions *Size*, when our attention is directed to the distance between the surfaces of a *whole figure* ; and *distance*, when it is directed to the space intervening between two objects. In both instances, however, we estimate the distance between points or lines ; and the mental perceptions appear to me to be fundamentally the same.

Dr Vimont does not advert to the circumstances which early led me to the belief that the same organ perceives both size and distance. They were the following :

A member of the Phrenological Society, told me that when he called on Dr Spurzheim in Paris, the latter remarked that he had the organ of Size largely developed. This proved to be a correct indication of the talent in his case ; for he possessed the power of discriminating size with great nicety. He possessed also great power of estimating distance : For example, he was able to draw a circle without the aid of any instrument, and to point out the centre of it with mathematical accuracy ; in doing which, he obviously estimated the distance between the point which he fixed on as the centre, and all parts of the circumference. Being in the army, he found himself able to make his company fall from column into line with great exactness ; estimating also correctly by the eye the space to be occupied by the men, which many other officers could never learn to do. Locality, which also he largely possessed, would aid him in this practice.

Many years ago, when I visited Sir George S. Mackenzie, Mr Ferguson, tutor in his family, stated, that he had a difficulty in "understanding a landscape" in a picture ; and explained, that "it appeared to him to present a group of objects on a plain surface, without any perceptible fore or back ground." He attributed this defect in his perceptions to his not having been taught the rules of perspective at school. In the course of farther interrogation, he stated, that he sees the forms of objects distinctly, as also their colours ; that he likes brilliant tints best, and that in nature he perceives distances also. He has visited Roslin (in the neighbourhood of Edinburgh), and not only perceives the beauty which characterizes that delicious spot, but enjoyed it with a keen relish. He has also seen many pieces of Highland scenery, and been delighted with them. Rivers, meadows, trees, and cultivated ground, are, however, the objects which interest him most. On turning his back upon any natural landscape, or shutting his eyes, his recollections instantly become very confused. He is not able to recall to his mind the "relative positions" of the objects, while he distinctly recollects the *pleasing impressions* which they made upon him ; this remembrance does not soon fade. His *recollection* of Roslin, for example, is like that of a confused picture of rocks and trees and a river winding through them ; but his remembrance of the impressions of grandeur and beauty, produced by the objects, is vivid and distinct.

For a long time it was difficult to account for this curious deficiency of mental power. Mr Ferguson permitted a cast of his face and forehead to be taken (which is sold in the shops), and in it the organ of *Size* appeared to be decidedly small, and Form and Locality not very fully developed ; while, by examining his head, it was found that Ideality, Wonder, and Benevolence, with the organs of the other sentiments and also of the intellectual powers, were nowise deficient ; but to which of the three organs of Size, Form, or Locality, the imperfection ought to be ascribed, it was not easy to determine.

Subsequently, however, Mr Douglas, miniature-painter, a member of the Phrenological Society, stated in conversation, that one of the earliest indications which he had exhibited of a liking for painting, was an extraordinary interest in matters connected with perspective. When a mere child, the appearance of approach in the remote ends of ploughed ridges puzzled him exceedingly, and he crawled across the fields, before he could well walk, to measure with a stick the actual distance between the ridges, and was lost in astonishment when he found that the space between each was actually the same at both ends, notwithstanding the great difference which appeared between them to his eye. He continued from this time to take a great interest in perspective, as a quality in painting, and he subsequently gave up landscape for miniature painting, not from inclination, but from other motives. On comparing his head with Mr Ferguson's, the organ of Size in him was found to differ more than any of the others, from its appearance in Mr F.'s head ; it was very large.

On subsequently examining the head of Mr P. Gibson, who was known greatly to excel in perspective, I again found the organ of Size very large. Farther, in the head of a gentleman with whom I am intimately acquainted, this organ is developed rather below than above an average ; and he stated to me, that, with the power of easily perceiving that one object is more distant than another, he has, nevertheless, felt great difficulty in representing distance correctly on paper ; and, while he understands the general theory of perspective, he could never learn to practise it by tact of hand, and, on this account, gave up all attempts at drawing. In the head of Sir Walter Scott, this organ was deficient, and he mentions that he could never succeed in sketching successfully from nature. He seems to have been unable to execute perspective accurately. These facts induce me to conclude that the power of appreciating perspective also depends on the organ of Size.

Sir G. S. Mackenzie is "inclined to think, that magnitude, size, length, breadth, thickness, height, depth, distance,

being all, strictly speaking, referable to extension, the faculty which we are in quest of is probably that of *space* in general.”¹

In a former edition, I mentioned the case of a lady who, having Form large and Size deficient, copied figures accurately in regard to form, but inaccurately in regard to size. To this statement Lord Jeffrey objected that size is necessary to proportion, and proportion to form; and that there was inconsistency in the account of the lady's talents. His Lordship is in the right; she informs me that it is only the simplest forms which have few parts that she is able to copy correctly, and in drawing even them she will err in size; but that when a figure has detached parts, although she may give the outline of each part by itself with considerable accuracy, it will be larger or smaller than the original; whence the whole figure will be deficient in proportion. In drawing from nature, she fails in perspective; nevertheless she feels great pleasure in observing forms, recollects them easily, and has a complete consciousness of the powers of Form and Size being different, and of the one being strong and the other weak in her mind.

Mr Jos. Toulmin Smith has published in the *Phrenological Journal*, vol. x. p. 494, an account of a curious aberration of perception to which he is occasionally liable. “The phenomenon,” says he, “to which I allude, consists in a sudden and involuntary alteration in the apparent size of objects presented to sight. Instead of their usual and real size, they appear *exceedingly small, as if in distant but very clear perspective*. No effort of *volition* can produce this condition of sight, neither can any remove it. My organs of Form, Size and Weight, Order and Locality, are all large. I never experienced the slightest difficulty in either estimating or drawing *perspective*. The affection is only occasional. It lasts from half an hour to an hour at a time,—never more, frequently less.” No explanation of this affection can yet be

¹ *Illustrations of Phrenology*, p. 159.

given. In the *Phrenological Journal*, vol. xii. p. 154, Dr Otto describes a case in which perception of distance was disturbed in concomitance with an injury in the right super-orbital region.

The frontal sinus throws a difficulty in the way of observing this organ; and the negative evidence is, therefore, chiefly to be relied on, in proving its existence and functions. See vol. i. p. 127-8-9.¹

25.—WEIGHT.

THERE seems to be no analogy between the weight or resistance of bodies, and their other qualities. They may be of all forms, sizes, and colours, and yet none of these features would necessarily imply that one was heavier than the other. This quality, being distinct from all others, we cannot logically refer the cognizance of it to any of the faculties of the mind which judge of the other attributes of matter. The mental power, however, undoubtedly exists, and its organ has been proved by the following among many other observations. Persons who excel at archery and quoits, and also those who find great facility in judging of momentum and resistance in mechanics, are observed to possess the parts of the brain lying nearest to the organ of Size largely developed. The organ is large in the mask of Maclachlan, a weaver of Saltcoats, who spent much time and money in devising means to regulate the stroke of the common pump, so as to make the working-rod move with the same momentum up and down: it is large also in the mask of Brunel, the celebrated engineer and mechanician. In examining masks, a depression of muscle which sometimes takes place at this

¹ Dr Vimont conceives that he has discovered in the animals which fly, swim, or march in groups, and always in a definite and regular order, an organ situated in the anterior portion of the orbitary plate, which he names "*Organe du sens geometrique.*" He does not know whether this organ exists in man or not.

part, in consequence of the weight of the plaster, must not be mistaken for a fulness of the organ. In blowing crown-glass, the workman dips the end of a hollow iron-tube into a pot of melted glass, and takes up as much of it as will suffice to make a circle. To form a full-sized circle, the quantity raised should be nine pounds and a half ; and when visiting a manufactory at Newcastle, I was told that an expert workman will generally hit the exact quantity, and very rarely deviate to the extent of two or three ounces, either under or over it. Some men excel others in this tact, and some are wholly incapable of acquiring it. I observed the organ of Weight very largely developed in the successful workman. I have observed it large also in all players on the harp, violin, and pianoforte, who are remarkable for exquisiteness of touch. It enables them intuitively to apply the exact degree of force requisite to produce the nice gradations of *forte* and *piano* required. Further, I have remarked that persons in whom Individuality, Size, Weight, and Locality, are large, have generally a talent for engineering, and those branches of mechanics which consist in the application of forces ; they delight in steam-engines, water-wheels, and turning-lathes. The same combination occurs in persons distinguished for successful execution of difficult feats in skating ; in which the regulation of equilibrium is an important element. Constructiveness, when Weight is small, leads to rearing still fabrics, rather than to fabricating working machinery.

Mr Simpson has published, in *The Phrenological Journal* (vol. ii. p. 412), an interesting and ingenious essay on this organ, in which he enumerates a great number of examples, in proof of its functions. It is large, says he, in Dr Chalmers, Dr Brewster, Sir James Hall, Sir George Mackenzie, Professor Leslie, and in Mr Jardine and Mr Stevenson, two eminent engineers. " We have lately seen," he continues, " Professor Farish of Cambridge, who manifests a high endowment of mechanical skill, and has the organ large ; as has Mr Whewell of the same University, who has written a work of merit on the same subject. In a visit we lately

made to Cambridge, we saw much that was interesting in regard to this organ. Professor Farish's son inherits the mechanical turn and the organ. We saw both the statue and bust of Sir Isaac Newton, by Roubilliac. The bust was a likeness taken in the prime of his years, and in it the knowing organs are still more prominent than in the statue. *Weight* is very pre-eminent. The same organ is very large in the bust of the lamented Dr Clarke, the traveller; and, as might have been expected, *Locality* quite extraordinarily developed.¹ We met with several persons with small *Weight*, who at once acknowledged deficiency in mechanical talent, and awkwardness in their actions and movements. A child of two years old was mentioned to us, although we did not see it, quite remarkable to every one for the large development of brain at this part of the frontal bone, and for the uncommon steadiness of its walk, at an age when other children totter, and it is the theme of wonder to all who know it."

Mr Simpson proceeds: "The faculty now under consideration, in high endowment, manifests itself in engineering, in dynamical skill, in the knowledge and application of mechanical forces. What may be its *lesser* endowments? Where do we find the organ? Situated in the midst of that group, which gives us the perception of the qualities of material objects; namely, Form, Size, Locality, Colouring, Order, and Number. It is evident there is a quality of bodies most essential to their nature, not included in these qualities

¹ "In the numerous living heads we saw at Cambridge, we met often with the organ of Number large, and found, invariably, that it was accompanied in the individual with algebraic celebrity. The organization generally corresponded to the cause of the person's rank in the University; and, although there were exceptions, most of the persons who have achieved honours, evidently owe them to the great power of their knowing organs;—clearly shewing that those who were also gifted with deeply-reflecting and combining powers, are not called to use them either in classical or mathematical studies. Many men, on the contrary, have figured in public life, in virtue of their great endowment of Causality and Comparison, who, from a smaller gift of the knowing organs, have held a very humble grade at Oxford and Cambridge."

singly or combined ; namely, their density and corresponding weight. As bodies gravitate in a well-known ratio to their density, and their density and weight are the same thing, weight is only one name for gravitation. Does it then serve any important purpose in our being, or is it essential to our animal existence, that we should have an instinctive perception of gravitation, operating constantly and independently of reason ? That state of rest which the law of gravitation constitutes the natural state of all bodies, solid, fluid, and æriform, is called their *equilibrium*. The simplest animal motions, what are they but alternate disturbance and restoration of *equilibrium* ?—"The land-animal walks and runs, and avails itself of the resistance of the earth,—the bird flies by its instinctive perception of the resistance of the air,—the fish uses its fins and tail, instinctively perceiving the resistance of the water.

"Some degree, therefore, of the power of adapting motions to the law of gravitation, some power over equilibrium, must be possessed by the whole animated creation,—for without it, it is plain, they must perish. May the organ of Weight be the organ of this faculty ? To man alone is given the capacity to aid this power, and render his motion more effectual, and force more availing by the use of instruments,—and Franklin well named him a tool-making, or rather a tool-using, animal. What are his tools ? They are all modifications of the elementary mechanical powers. His club and bow are levers,—his axe, knife, sword, and arrow, are wedges. He instinctively aids his own muscular force by the lever, when he applies a bar of wood to raise a stone from the ground ;—if he wishes to raise that stone to a certain height, perpendicularly, he will instinctively counteract its gravitation by forcing it up an inclined plane, instead of applying his own bodily force to lift it perpendicularly. The principle of the pulley will suggest itself whenever he has obtained a block with a cord or thong, to draw water out of a pit. The screw is only the inclined plane wrapt spirally round a cylin-

der ; to avail himself of which he would be led, whenever he attempted, as he early did, to build a tower."

These views, says Mr Simpson, are strongly supported by diseased affections of this part of the brain. Miss S. L. was attacked with headach, and pain in the region of the organ of Weight ; " her perception of equilibrium was deranged, and she experienced giddiness, inclined position of horizontal floors and ceilings, and the sensation of being lifted up, and of again falling down and forward. Her account of it is worthy of remark, for she said she felt as if she had been *tipsy*." Mr Simpson refers to a diseased condition of this and of some of the other knowing organs, a curious mental affection, which Mr John Hunter, the celebrated anatomist, experienced in 1776, and which is recorded in his Life, written by Sir Everard Home. " From great anxiety of mind," says he, " Mr H. had a severe illness. It attacked him on a journey, and his first sensation, it is well worthy of remark, was that of *having drunk too much*, although he had taken nothing but a little weak punch. On going to bed, he felt as if *suspended in the air*, and soon after *the room seemed to go round* with very great rapidity. This ceased, but the strange sensation, like Miss S. L.'s, of being lifted up, continued ; and, on being brought home in his carriage, his sensation was that of *sinking or going down*. The symptoms of whirling and suspension increased ; and his own head, when he raised it from his pillow, seemed to move from him to some distance with great velocity. When he became able to stand without being giddy, he was unable to walk without support ; ' for,' says Sir E. Home, ' *his own feelings did not give him information respecting his centre of gravity*, so that he was unable to balance his body, and prevent himself from falling.' We need not add," continues Mr Simpson, " the obvious comment, that the organ of *Weight* was diseased, and the very function we have imputed to it, the instinct of equilibrium (expressed almost in our own words by Sir E. Home), unequivocally impeded."¹

¹ *Phrenological Journal*, vol. ii. p. 302, 426.

The phenomena of intoxication are explained by Mr Simpson in a similar way. "Both Miss S. L., and Mr John Hunter," says he, "bore testimony to the illusive *feeling* of being intoxicated, while Miss S. L. had acute pain in the organ of the instinct or power of preserving the balance, and maintaining an upright posture. But for an innate, steady, and never-failing perception of equilibrium, animal movements would be only staggering and tumbling. The intoxicated soon lose a steady gait, fall down, see perpendiculars at other angles, believe the floor itself perpendicular, and grasp the ground to save themselves from falling off its surface; they feel lifted up, sinking down, and whirling round. Sickness would follow these sensations, independent of the stimulus of the liquor to the stomach; and it is extremely probable that sea-sickness results from the inverted feelings occasioned by motion which violates our habitual perception of equilibrium."¹

A correspondent of *The Phrenological Journal*,² mentions, that he was struck with this remark about sea-sickness arising from the disturbance of equilibrium, and found by experience when at sea, that, by standing at the vessel's side, directing his eyes to an object on shore perfectly still, the top of a mountain for example, and shutting out with the palms of his hands all sight of the ship and the sea, sickness was invariably dispelled; but always returned whenever he withdrew his hands, and allowed any part of the vessel to catch his eye. I have seen instances which strongly support the idea, that, *cæteris paribus*, those persons are least subject to sea-sickness in whom the organ is largest.

Sir G. S. Mackenzie has suggested the name "Resistance," as more appropriate for this faculty than "Weight." "We cannot judge," says he, "of Weight, as we do of form, without repeated experience. We may see before us two balls of the same size and colour. We take up one of them, and perceive that it requires a certain exertion or re-

¹ *Phrenological Journal*, vol. ii. p. 427.

² Vol. ii. p. 645.

sistance on the part of the muscles of the arm and hand to support it. From this, however, we cannot determine that the other ball will produce the same effect, for it may be hollow. Now, although we have obtained the experience that two similar balls may not produce the same effect, this experience is of no use to us, for we must always make the experiment of lifting both, in order to determine which is the heavier. The impression of *resistance* is, however, left with us; and probably it is the function of the faculty which Dr Spurzheim calls that of Weight, to give us conceptions of resistance in general."¹ Mr Simpson conceived resistance to be perceived by an external sense formerly spoken of,² and called this the faculty of Force.³ He subsequently agreed with Mr Edmondson in viewing Constructiveness as the organ of Force, and this as the organ of Gravitation. Dr Vimont admits this organ, and calls it "the organ of resistance:—the organ which appreciates the resistance of bodies."

Mr Richard Edmondson of Manchester mentions that a great number of observations have led him to the conviction that this organ gives the perception of perpendicularity. Workmen who easily detect deviations from the perpendicular possess it large; while those who constantly find it necessary to resort to the plumb-line have it small, and *vice versa*.⁴ The same gentleman has more recently published⁵ an essay on the functions of the organs of Weight

¹ *Illustrations of Phrenology*, p. 160.

² See the section on Touch in this vol. p. 16.

³ The views of Mr Simpson are expounded in the *Phren. Journ.*, vol. ix. p. 193. A very extensive discussion has taken place regarding the functions of this faculty, but no generally admitted conclusion has yet been reached. See *Phren. Journ.* vol. x. p. 148, 462, 525, 535, 730; also vol. xii. p. 206, 366. In vol. xiv. p. 109, there is an instructive communication by Mr Hytche, of cases illustrative of the functions of the organ. See also vol. xv. p. 114. On p. 357, 363, of the same volume, the effects of mesmerism applied to the organ are described.

⁴ *Phren. Journ.*, vol. vii. p. 106.

⁵ *Id.* vol. ix. p. 624.

and Constructiveness ; in which he maintains the same view, with this addition, that the faculty perceives not only perpendicularity, but also the direction of force, and in particular the direction of the gravitating force of our bodies. The perception of the *degrees* of force he refers to Constructiveness.

Mr Sampson also, in a letter to me, published in the *Phren. Journal*, vol. xii. p. 366, suggests that *direction* depends on *weight*. An accurate perception of direction is as essential as a just estimate of momentum, in playing at quoits, and practising archery with success ; and this idea is countenanced by an observation which I have repeatedly made, viz., that expert marksmen with the pistol and gun, have this organ uniformly large. Dr Vimont mentions that this organ is large in all the birds of prey, and also in the cat.

26.—COLOURING.

ALTHOUGH the eyes are affected agreeably or disagreeably by different modifications of the beams of light, or by colours, yet they do not conceive the relations of different colours—their harmony or discord—and they have no memory of them. Certain individuals are almost destitute of the power of perceiving colours, who yet have the sense of vision acute, and readily perceive other qualities in external bodies, as their size and form. This fact has been remarked by Mr Stewart. He says,—“ In the power of conceiving colours, too, there are striking differences among individuals : and, indeed, I am inclined to suspect, that, in the greater number of instances, the supposed defects of sight in this respect ought to be ascribed rather to a defect in the power of conception. One thing is certain, that we often see men who are perfectly sensible of the difference between two colours when they are presented to them, who cannot give

names to these colours with confidence, when they see them apart; and are, perhaps, apt to confound the one with the other. Such men, it should seem, feel the sensation of colour like other men, when the object is present: but are incapable (*probably in consequence of some early habit of inattention*) to conceive the sensation distinctly, when the object is removed."¹

In this quotation we have a specimen of the usual mode of conducting metaphysical speculations. When the most curious and perplexing phenomena of the mind are mentioned, and when we look anxiously for an explanation of them, *habit* or *association* is dragged in to solve the difficulty; and this perhaps merely in a parenthesis, as if no difficulty existed.

By means of observation, we have discovered that individuals who have the part of the brain marked No. 26 largely developed, possess in a high degree the power of discriminating colours; and, on this account, the phrenologist admits that power as a fundamental faculty of the mind.

Lord Jeffrey objected to this doctrine, that light is always coloured, indeed nothing else but colour; and that it is impossible for any one to see acutely who cannot distinguish colours with equal success, because all visible objects must necessarily be distinguished by colour alone. The answer is, that the eye receives the external impression of light, and transmits it to the brain. The apparatus of transmission is the following. The retina transmits the impression to the optic nerve, and the optic nerve to the anterior pair of the *corpora quadrigemina*. All of these are necessary to the reception of the impressions of light. But these do not produce the perception of colour.² The impressions must

¹ *Elements*, ch. iii.

² Mr Simpson, in an ingenious essay published in the *Phrenological Journal*, vol. x. p. 444, maintains that "Colour alone is seen by us; and the only operation of light on the eye is *painting a coloured picture* on the retina. Turn where we will, colour, not mere light, meets us; and all that light does for us is to make colour visible."

be communicated farther, to a particular convolution of the brain, the organ of colouring. The superior longitudinal commissure, lying above the *corpus callosum*, connects the anterior lobe with the posterior regions of the brain. The case is analogous to that of the ears transmitting sound to the organ of Tune. If the eye, optic nerve, and corpora quadrigemina,¹ be perfect, and the organ of Colouring deficient, the individual may be capable of distinguishing degrees of intensity of light, although he cannot discriminate differences of tint: and the former is sufficient to acute vision, as is proved by engraving and black chalk drawing; in which form, distance, and expression, are successfully represented by mere differences of light and shade, or by different degrees of light independent of varieties of colour.

The faculty when powerful gives a delight in contemplating colours, and a vivid feeling of their harmony and discord. Those in whom the organ is deficient, experience little interest in colouring, and are almost insensible to difference of hues. In the *Transactions of the Phrenological Society*, p. 210, Dr Butter reports the case of Mr Robert Tucker, whose eye-sight was not deficient, and who was able neither to distinguish nor to recollect many of the primitive colours, even when shewn to him. "Orange he calls green, and green colours orange; red he considers as brown, and brown as red; blue silk appears to him like pink, and pink of a light blue colour; indigo is described as purple." The organ is reported to be decidedly deficient in this gentleman's head. The case of Mr James Milne, brass-founder in Edinburgh, is also peculiarly illustrative of this faculty; and, as I obtained the facts from himself, they may be implicitly relied on.

Mr Milne's grandfather, on the mother's side, had a deficiency in the power of perceiving colours, but could distinguish forms and distance easily. On one occasion, this gentleman was desirous that his wife should purchase a beauti-

¹ See pp. 25-6 of this vol.

ful green gown. She brought several patterns to him, but could never find one which came up to his views of the colour in question. One day he observed a lady passing on the street, and pointed out her gown to his wife, as the colour that he wished her to get; when she expressed her astonishment, and assured him that the colour was a mixed brown, which he had all along mistaken for a green. It was not known till then that he was deficient in the power of perceiving colours.

Neither Mr Milne's father, mother, nor uncle on the mother's side, was deficient in this respect; so that the imperfection passed over one generation. In himself and his two brothers, however, it appeared in a decided manner; while in his sisters, four in number, no trace of it is to be found; as they distinguish colours easily. Mr Spankie, a cousin once removed, has a similar defect.¹

Mr Milne is rather near-sighted, but never could find glasses to aid his defect. He rather excels in distinguishing forms and proportions; and, although he cannot discover game upon the ground, from the faintness of his perception of colours, yet he is fond of shooting: when a boy, he was rather an expert marksman, when the birds were fairly visible to him in the air. He sees them, however, only in the sky-light; and, on one occasion, when a large covey of partridges rose within ten or twelve yards of him, the back ground being a field of Swedish turnips, he could not perceive a single bird. His eye is convex to a considerable degree.

Mr Milne's defect was discovered in rather a curious manner. He was bound apprentice to a draper, and continued in his service for three years and a half. During two

¹ I have examined the heads of Mrs Milne's brothers, who are deficient in the power, and in them the organ is evidently little developed. I have also examined its development in one of his sisters, and found no deficiency, but rather a fulness in the organ. Mr Lyon, a member of the Phrenological Society, states that he has examined the head of Mr Spankie, and found the organ rather deficient.

years, he fell into considerable mistakes about colours, but this was attributed to inexperience, and ignorance of the names of the tints. At length, however, when he was selling a piece of olive corduroy for breeches, the purchaser requested strings to tie them with ; and Mr Milne was proceeding to cut off what he considered the best match, when the person stopped him, and requested strings of the same colour as the cloth. Mr Milne begged him to point out a colour to please himself ; and he selected, of course, a green string. When he was gone, Mr Milne was so confident that he himself was right, and the purchaser wrong, that he cut off a piece of the string which he intended to give, and a piece of that which had been selected, and carried both home, with a piece of the cloth also, and shewed them to his mother. She then told him that *his ribbon was a bright scarlet and the other a grass-green*. His masters would not believe in any natural defect in his power of perceiving colours : and it was only after many mistakes, and some vituperation, that he was permitted to renounce the business, and betake himself to another, that of a brass-founder, to which he had a natural disposition ; for he had used the turning-lathe in fashioning playthings when a mere boy.

As to the different colours, he knows blues and yellows certainly ; but he cannot distinguish browns, greens, and reds. A brown and green he cannot discriminate or name when apart ; but when together, he sees a difference between them. Blue and pink, when about the same shade, and seen in day-light, appear to him to be of the colour of the sky which he calls blue ; but seen in candle-light, the pink appears like a dirty buff, and the blue retains the appearance which it had in day-light. The grass appears to him more like an orange than any other coloured object with which he is acquainted. Indigo, violet, and purple, appear only different shades of one colour, darker or lighter, but not differing in their bases. He never mistakes black and white objects : he distinguishes easily between a black and a blue, and is able even to tell whether a black is a good or a bad

one. In the rainbow he perceives only the yellow and the blue distinctly. He sees that there are other tints in it, but what they are he cannot distinguish, and he is quite unable to name them. In day-light, crimson appears like blue or purple, but in candle-light it seems a bright red.

When in Glasgow, his greatcoat was carried off from the travellers' room by mistake, and on inquiring at the waiter what had become of it, the question was naturally put, what was the colour of the coat? Mr Milne was quite puzzled by the interrogatory; and, although he had worn it for a year, he could only reply that it was either snuff-brown or olive-green, but which he could not tell. The waiter looked as if he suspected that Mr Milne wanted to get a coat instead of wishing to recover one; but the coat was found, although even yet Mr Milne is not able to tell the colour. He is apt to mistake copper for brass, unless he distinguishes them by the file.

A mask of Mr Milne is sold in the shops, and in it the organs of Form, Size, and Constructiveness¹ are well developed, while that of Colouring is decidedly deficient; there being a depression in the part corresponding to this organ, into which the point of the finger falls on passing it along. As a contrast, the reader may compare it with the masks of Sir David Wilkie, Mr Haydon, Mr Douglas, or Mr Williams, all eminent painters; and as the organ is large in these masks, a very marked difference will be perceptible.

Cases of this description are not rare. In the mask of Mr Sloane of Leith, the development is small, and in a letter, dated 20th February 1822, addressed to me, this gentleman says,—“When I see a piece of tartan, or any other complication of colours, I can easily distinguish the difference of hues; but were the different colours presented to me singly, I could not say which was which. I feel particularly at a loss to distinguish betwixt green and brown, and likewise betwixt

¹ This is an example of the organ of Constructiveness being situated higher than usual, as noticed in vol. i. p. 327.

some shades of red and blue. I am not sensible of being deficient in seeing any thing at a distance, or of being unable to perceive as small a particle as the generality of men can do." In this mask, the deficiency is not so great as in that of Mr Milne, but the organ of Colouring is much less developed in it than in the masks of the painters before alluded to.¹

In the *Phren. Journ.*, vol. x. p. 466, a case is mentioned in which a person, in consequence of injury of the brain, became blind, who, nevertheless, had visions of groups of persons "in clothing of all colours." This shews that the conception of colours may remain after vision is lost. See also vol. xiv. p. 149, 230, 288, 358.

Sir John F. W. Herschel's explanation of the cause of deficiency in the power of discriminating between certain colours, seems to coincide with that before given. "We have examined," says he, "with some attention, a very eminent optician, whose eyes (or rather eye, having lost the sight of one by an accident) have this curious peculiarity, and have satisfied ourselves, contrary to the received opinions, that all the prismatic rays have the power of exciting and affecting them with the sensation of light, and producing distinct vi-

¹ A collection of similar cases has been made by Mr Robert Cox in *The Phrenological Journal*, vol. vii. p. 144. In addition to the works there referred to, the following, enumerated by Dr Mackenzie, in his *Practical Treatise on the Diseases of the Eye*, 2d edit. p. 861, may be consulted by the reader who is curious respecting such cases.—Nicholl, in *Medico-Chirurgical Transactions*, vol. vii. p. 477, and vol. ix. p. 369; also in *Annals of Philosophy*, New Series, vol. iiii. p. 128.—Harvey, in *Transactions of the Royal Society of Edinburgh*, vol. x. p. 253; also in *Edinburgh Journal of Science*, vol. v. p. 114.—Brewster, in *Edinburgh Journal of Science*, vol. iv. p. 85.—Colquhoun in *Glasgow Medical Journal*, 1829, vol. ii. p. 12.

Dr Henry Holland, in the second chapter of his *Medical Notes and Reflections*, gives instances of the defect prevailing in families. "I am acquainted," says he, "with a family in which there are three examples, the father and two children, of inability to distinguish red as a colour. Another example, resembling the last, is known to me, where three brothers, and two or three children of their families, have the inability to distinguish between blue and pink. Instances of this kind, as an hereditary defect, are far from unfrequent."

sion ; so that the defect arises from no insensibility of the retina to rays of any particular refrangibility, nor to any colouring matter in the humours of the eye preventing certain rays from reaching the retina (as has been ingeniously supposed), but from a defect in the sensorium, by which it is rendered incapable of appreciating exactly those differences between rays on which their colour depends.”¹

It appears difficult, however, to perform an experiment of this nature which should be conclusive. If, for example, the optician's defect consisted in being incapable of distinguishing red light, and if Sir John F. W. Herschel produced that light artificially, and exhibited objects to the optician under its illumination, and if he saw the forms and sizes of objects but not their red colour, it would not follow that he saw these by means of the red rays, because Sir David Brewster has shewn that “*red, yellow, and blue* light exist at every point of the solar spectrum. That as a certain portion of *red, yellow, and blue*, constitute white light, the colour of every point of the spectrum may be considered as consisting of the predominating colour at any point mixed with white light. In the red space there is more red than is necessary to make white light with the small portion of yellow, and blue which exist there ; in the yellow space there is more yellow than is necessary to make white light with the red and blue ; and in the part of the blue space which appears violet, there is more red than yellow, and hence the excess of red forms a violet with the blue.” Brewster's *Treatise on Optics*, Part II. chap. vii., figs. 50 and 51. Hence there might be as much white light mixed with the red as sufficed to shew the form and size of the objects to the optician.

There are instances of individuals who involuntarily associate particular colours with particular names, even although they have never seen the persons named ; thus, all Johnsons will be blue, and all Thomsons black, and so on with other names and colours. There appears to be an association in

¹ *Encyclopædia Metropolitana*, article “*Light*,” p. 434, § 507.

activity between the organs of Colouring and Language in such individuals, so that the one cannot act without exciting the other; as some men cannot bend one finger without bending also the one next to it. This, however, is only a conjecture.¹

The proper way to observe the development of the organ of Colouring, is to distinguish to what extent the centre of each eyebrow projects forward. In Mr Milne it is slightly depressed below the neighbouring parts; in Mr Sloane, it is scarcely depressed, but it does not project, so as to overhang the eye-ball; in the painters it is large and prominent, forming a heavy shade above the eye. Dr Spurzheim mentions that a large development of it is indicated by an arched appearance in the middle of the eyebrow, and that this sign is found in the portraits of Rubens, Titian, Rembrandt, Salvator Rosa, Claude Lorraine, &c.; but its large size is indicated also by the projection forward of this part of the eyebrow without arching. It presents this appearance in the masks of the late Sir Henry Raeburn, Sir David Wilkie, Haydon, and other eminent painters.

Dr Gall states it as an indubitable fact, that determinate laws of proportion in colours exist. The three primitive colours of blue, yellow, and red, says he, do not harmonize. If we mix two of these, an intermediate colour is produced; blue and yellow give green; blue and red, violet; red and yellow, orange. To obtain a harmonious combination, we must place beside a primitive colour a mixed one, into which the primitive enters as an element; the mixed colour will always be in harmony with the two primitive colours from which it is produced. If we place, says he, a silk ribbon, of a blue colour, and about an inch broad, on a sheet of white paper, and look at it stedfastly; at the end of a short

¹ See cases of colours associated with things, persons, and musical notes, in *The Phrenological Journal*, vol. iii. p. 420; also, vol. viii. pp. 70, 216.

time, we shall see besides, yellow and red, and (at the side) orange, resulting from the mixture.¹

Lord Jeffrey, in the article "Beauty," already alluded to, informs us, that "colour is, in all cases, absolutely indifferent to the eye;" and adds, that "it is no doubt quite true, that, among painters and connoisseurs, we hear a great deal about the harmony and composition of tints, and the charms and difficulties of a judicious colouring. In all this, however, we cannot help thinking that *there is no little pedantry and no little jargon.*" Speaking of the natural gamut of colours, he continues: "We confess we have no faith in any of these fancies; and believe, that if all these colours were fairly arranged, on a plain board, according to the most rigid rules of this supposed harmony, nobody but the author of the theory would perceive the smallest beauty in the exhibition, or be the least offended by reversing their collocation." It is a curious fact, that the organ of Colouring in Lord Jeffrey's head is actually depressed; and it appears that, in the usual manner of metaphysical writers, he has conceived his own feelings to be an infallible standard of those of human nature in general. It is quite true that the *eye* is affected only by the degrees of light; but by this expression, the mind is here obviously meant. The author, when speaking in the next sentence of the gamut, draws no distinction between the powers of the mind and those of the eye. Those individuals, then, whose cases I have cited, and who cannot distinguish dark-brown from scarlet, buff from orange, or violet from pink, would probably subscribe to Lord Jeffrey's positions. But other individuals, such as Wilkie and Haydon, have an intense sensibility to shades of every hue, and of every degree; and some painters have assured me, that they experience a very decided emotion in contemplating colours, independently of every association; and declare, that they perceive harmony, congruity, and incongruity, in their arrangements, even on a plain board, as certainly and as distinctly as they distinguish harmony and discord in sound.

¹ *Sur les Fonctions du Cerveau*, tome v. p. 81.

Lord Jeffrey, in criticizing this work in *The Edinburgh Review*, No. 88, controverts these inferences. "Without meaning," says he, "to call in question the fact of the depression of his skull, we happen to *know* that the individual here mentioned has a remarkably fine and exact perception of colours, so as to be able to *match them* from memory, with a precision which has been the admiration of many ladies and dressmakers. He has also an uncommon sensibility to their beauty; and spends more time than most people in gazing on bright flowers and peacocks' necks, and *wondering*, he hopes innocently, *what can be the cause of his enjoyment*. Even the phrenologists, we think, must admit, that, *in his case*, it cannot be the predominance of the appropriate faculty, since they have ascertained that he is totally destitute of the organ."

In a letter which I addressed to Lord Jeffrey, in answer to this criticism,¹ I asked, "How could you assert in the *Encyclopædia*, that 'colour is in all cases absolutely *indifferent* to the eye,' if you were conscious when you wrote of possessing 'an *uncommon sensibility to their beauty*?' How could you stigmatize as '*pedantry and jargon*,' the doctrine of 'the harmony and composition of tints, and the charms and difficulties of a judicious colouring,' and assert, 'that if all those colours were fairly arranged, on a plain board, according to the most rigid rules of this supposed harmony, nobody but the author of the theory would perceive *the smallest beauty* in the exhibition, or be the least offended by reversing their collocation,' when all the time you enjoyed in yourself 'a remarkably fine and exact perception of colours, so as to be able to *match them* from memory with a precision which has been the admiration of many ladies and dressmakers?' "Matching them" obviously implies a perception of their harmony and discord.

In a Note to the 89th Number of the *Review*, Lord Jef-

¹ *Phrenological Journal*, vol. iv. p. 1, and also p. 242.—I beg leave to refer the reader to these Letters for an answer to the whole of Lord Jeffrey's criticisms on this work. The first is published also separately.

frey replied to this argument as follows: "There are two questions here; *first*, whether there are any grounds, from inconsistency or otherwise, to impeach the credit of the Reviewer, when he says that he can *distinguish* colours, and shades of colours, with more than common accuracy? and, *secondly*, whether there are any such grounds for disbelieving him, when he says that he has a strong sense of their *beauty*? The first is the main allegation, and formed the whole original subject of controversy. Mr Combe alleged that the organ of colour was actually depressed in the head of that individual, and inferred that he probably did not know scarlet from brown: it was answered that this was a mistake,—for he was known to have a remarkably fine perception of colours and their diversities: and the replication to this in the pamphlet is, that that cannot well be, since he himself had stated, in the Encyclopædia, that all colours are indifferent to the eye, and one just as beautiful as another. Well, suppose he had said so, where would have been the inconsistency? for, where is the connection between the allegations that are held to be contradictory? A man who happens to think brown as beautiful as scarlet, may surely perceive *the difference* between them,—or rather, he *must* perceive it, when he compares them, in this way, as two distinct and distinguishable objects. There is not, therefore, the shadow of a pretext for discrediting the Reviewer's leading allegation, that the individual alluded to, though destitute of the phrenological organ, can discriminate colours with unusual readiness and precision."

In answer to these remarks, I beg leave to observe, that Lord Jeffrey overstates my objection. The paragraph on which he comments is printed in this work *verbatim* as it stood in the edition reviewed, and the reader will perceive that I did not allege that the organ was absolutely wanting in his head, and did not infer that he was incapable of perceiving colours, or that "he probably did not know scarlet from brown." On the contrary, the statement was merely that the organ is "depressed;" that is to say, that in him

it is deficient in size relatively to the other organs—whereas in the painters it is large. The work itself afforded information of the effect of a depressed organ: it is said that “PERCEPTION is the *lowest* degree of activity” of every intellectual faculty; “when a coloured object is presented, and the individual cannot perceive, so as to distinguish the hues, he is *destitute* of the power of manifesting the faculty of colour;” “each organ will enable the mind to recall the impressions which it served at first to receive;” and memory is merely “a degree of activity of each faculty.” A friend in India, after reading Lord Jeffrey’s note, wrote to me as follows: “Melody is the pleasure arising from successions of simple sounds suited to each other. Harmony is that arising from combined sounds, or from several striking the ear simultaneously, as in a band playing different parts. The former requires much less of the organ than the latter, and hence the Scotch, with no great Tune, are melodists, but nothing as musicians. In like manner, the allocation of simple colours is their melody, and the combination of several is harmony. Lord Jeffrey might thus place one ribbon beside another very well, but not perceive the harmony of combined colours.”¹ There is no inconsistency therefore, between the depression of Lord Jeffrey’s organ of Colouring and the manifestations which he describes. Even Mr Milne is able to perceive some colours and to distinguish differences between them, and he has memory of some of them; although in him the organ is considerably more depressed than in Lord Jeffrey.

The real objection stated in the work was, that painters not only distinguish differences, but enjoy *direct* pleasure from “contemplating colours independently of every association; and that they perceive harmony, congruity, and in-

¹ I understand that this defect is apparent in some painters; they are capable of matching a few simple colours, but when a numerous assemblage of them requires to be introduced into a picture, they fail in giving them harmony.

congruity, in their arrangements, even on a plain board, as certainly and distinctly as they distinguish harmony and discord in sounds ;" which assertions Lord Jeffrey characterised as pedantry and jargon.

In answer to my statement, therefore, he should have proved, that notwithstanding his depressed organ, he possesses the faculty in this higher degree, that he actually receives *direct* pleasure from colours, and perceives their harmonies and discords. In No. 88 of the *Review*, he endeavoured to do this, by referring to his "remarkably fine and exact *perception* of colours, so as to be able to match them from memory ;" and to his delight "in gazing on bright flowers and peacocks' necks : " and in No. 89 of the *Review*, he favours us with the following additional arguments in support of this position.

"But, in the next place," says he, "and this is still more material, it is certain that the individual in question *does not maintain*, in the Encyclopædia, that there is no beauty *in* colours, or combinations of colours,—but the very reverse. His whole object in that treatise, as every one must know who has looked into a line of it, is, not to deny the existence of beauty, but to *explain* its nature and causes, in colours as in every thing else : And, accordingly, not only is there no doubt thrown on the fact of their beauty, but its reality, and that of the peculiar pleasure afforded by it, is both expressly asserted in a variety of passages, and *constantly* assumed and taken for granted, as the very basis of the theory, and the test of the illustrations which are urged in its support. The theory is, that colours are beautiful, not in consequence of the mere organic operation of their physical qualities on the eye, but in consequence of their habitual *association* with certain simple emotions or mental qualities, of which they remind us in a great variety of ways. Thus Blue, for example, is said to be beautiful, because it is the colour of the unclouded sky,—Green, because it is that of vernal

woods and summer meadows,—and Red, because it reminds us of the season of roses, or of the blushes of youth and innocence ;—and, accordingly, when these associations are disturbed, the beauty which they created disappears. Green would not be beautiful in the sky, nor blue on the cheek, nor vermilion on the grass. The doctrine is precisely the same as to the beauty of combination of colours, and it is attempted to be proved by similar illustrations. Throughout it is distinctly stated, and invariably assumed as indisputable, *that they are beautiful*, and afford pleasure to those who admire them,—though it is alleged that there is a good deal of pedantry in those who dogmatise on the laws of their harmony, and affect to limit their pleasing combinations exclusively to certain arrangements. It is maintained, as before, that their beauty depends *entirely* on the associations with which they are connected ; and while it is admitted that certain combinations will generally excite the same associations in those who are devoted to the same pursuits, it is denied that these are either universal or unvarying, or that the feeling they undoubtedly excite can ever be referred to the organic action of the coloured light on the sense. These opinions may be right or wrong, but the only question now at issue is, whether they are inconsistent with the admission of the fact, that colours are beautiful ? and whether the man who holds them must be disbelieved, when he says that he has a keen sense of *this kind of beauty* ?

In this note Lord Jeffrey no longer wonders what can be the *cause* of his enjoyment from the bright flowers and peacocks' necks. He informs us distinctly, that he has no *direct* perception of beauty in their colours as mere colours, but that the beauty perceived by him depends "*entirely* on the associations with which they are connected." "Colours," says he, "*are beautiful, not in consequence of the mere organic operation of their physical qualities on the eye, but in consequence of their habitual association with certain simple emotions or mental qualities of which they remind us in a great*

variety of ways." It now turns out, accordingly, that his pleasure in contemplating the bright flowers and peacocks' necks arose, not from any quality in these objects themselves, or from any direct effect produced by them on his mind, but from something else, which they served merely to introduce to his fancy. He was pleased, for example, with the red of the flowers, not because it was a colour grateful in itself, but because it reminded him of the lovely season in which roses are produced, or of the blushes of youth and innocence; and he delighted in the blue of the peacocks' necks, not because that colour was intrinsically pleasing, but because it excited the recollection of the unclouded sky. The painters, on the other hand, in whom the organ is large, state that the source of their pleasure in colours is direct. They inform me that Lord Jeffrey's love of bright flowers and peacocks' necks indicates that his organ of colouring must be feeble; because a strong stimulus is necessary to excite it to action, and even when it is thus stimulated, he is not capable of feeling direct pleasure from colours, but they serve merely to introduce extrinsic ideas and emotions. His experience, therefore, corresponds in the most complete manner with the "depressed" state of the organ in his head.

This is so plain as scarcely to admit of illustration; but we may suppose a young military officer to assert that there is no harmony or discord in sounds, and no direct pleasure in melody; but that, nevertheless, he enjoys great delight in hearing a military band. If we should ask him what is the source of his delight in the band, and he should answer, "The notes give me pleasure, not in consequence of the mere organic operation of their physical qualities on the ear; but because they remind me of the gay uniforms, the waving plumes, and the martial pomp of our regiment; they recall also the summer evening parade, with the fairy forms and angel smiles of female loveliness which then hover around us; in short, with me, their beauty depends on the associations which they serve to introduce," Phrenology would certainly be in fault if the man who made such a statement were

not deficient in the organ of Tune. In fact, the individual supposed would never dwell for a moment on the music itself; to him it would be mere sound, exciting in his mind ideas of the soldiers, the parade, and female beauty, which would be the real objects of his admiration and the sources of his enjoyment. This case is an exact parallel to that of Lord Jeffrey, in regard to colours. The colours themselves convey no impression of beauty to his mind: they never engage his attention by their own loveliness; but merely usher in extraneous ideas and emotions, in which he finds his gratification. Would not Phrenology be again in fault, if in him the organ of Colouring were otherwise than "depressed?"

A legal practitioner, in a Scotch provincial town, whom I have seen, and in whom this organ was very large, was engrossed by a passion for flowers, even to the neglect of his professional duties. He collected and propagated fine specimens, without any directly scientific object. His principal delight seemed to be in the colours and forms. He was frequently seen, for minutes at a time, bending over a bed of flowers, and during the season, he was seldom without a bunch of them in a button hole of his coat. It is probable that the intense sensibility to colours, which accompanies a large development of the organ, was the source of this interest.

Phrenologists are accustomed to infer the particular powers which are most vigorous in an author's mind, from the manifestations of them in his works; and none affords better scope for observation than the faculty of Colouring. Unless the impressions made on the mind of an author by colours be very strong, he has no inducement to introduce them in his works, for he can easily treat of a great variety of subjects without adverting to their hues. When, therefore, we find him minutely describing tints and shades, and dwelling on colours and their effects with evident delight, we may safely infer that the organ is large. Mr Tennant, the author of *Anster Fair*, frequently does so, and in his head the organ is large.

The organ is generally larger in women than in men ; and, accordingly, some women, as *colourists*, have equalled the masters among men ; while, as *painters*, women, in general have always been inferior to the other sex. The faculty aids the flower-painter, enameller, dyer, and, in general, all who occupy themselves with colours. Its great energy gives a passion for colours, but not necessarily a delicate taste in them. Taste depends upon a perfect rather than a very powerful activity of the faculties. In several oriental nations for example, the faculty appears, from their love of colours, to be strong, and, nevertheless, they display bad taste in the application of them.

If any conclusion may be drawn from the very limited observations which have been made on the development of the organ of Colouring in different parts of the world, it appears to be large in those countries where vegetation displays the greatest brilliance of tint, and deficient where the aspect of nature is dreary and unvariegated. The organ, for instance, seems to be large in the Chinese ; while it is small in the Esquimaux, to whom the sky, and snow, and ice, are almost the only objects of vision. Captain Parry mentions that dyeing is an art wholly unknown to the Esquimaux.¹

Dr Spurzheim observed, that, in persons born blind, the organ of Colouring is in general less developed than in persons who see, or who have become blind in mature age. I have repeatedly verified this observation in asylums for the blind. Indeed it is possible, by observing the development of the organ of Colouring, to distinguish individuals who have become blind in infancy, from others who have lost their sight in mature age ; in the former the organ is much less developed than in the latter. James Wilson of Belfast, author of *Biography of the Blind*, lost his sight from small-pox at four years of age. His right eye was subsequently couched, and he saw till he was seven ; his vision was then

¹ Parry's *Voyages*, 12mo, vol. v. p. 295.

again extinguished by a furious cow, and he has continued blind ever since. After he became blind he learned to work as a carpenter; he also acquired such an accurate and extensive knowledge of places, as to be able to act as a kind of courier for the merchants, to the extent of thirty or forty miles round Belfast; he boasts of considerable literary attainments, and possesses a very extensive memory for persons, places, names, and dates. I saw him in 1836, when he was in the 57th year of his age: at that time his organs of Colouring were very small; while those of Individuality, Size, and Number, were large, and those of Form and Locality very large. His temperament was nervous, bilious, and a little sanguine. The organs which had been most exercised appeared to have attained the largest size, while the organs of Colouring, which had been dormant, had apparently scarcely grown from infancy. A mask of him was taken, and is in the collection of the Phrenological Society.¹

Dr Gall mentions, that he had seen a bookseller of Augsburg, blind from birth, who maintained that it is not the eye, but the intellect, which recognises, judges, and produces proportion among colours. This individual asserted, that, by means of an internal sense, he had precise notions of colours, and it is a fact that he determined their harmony exactly. He had a number of glass beads of various colours, which he formed into different figures, and always produced harmony in the arrangement of the colours. After making a great effort of this kind, he experienced pain immediately above the eye, particularly over the right eye.² I have seen a blind man in Stirling, who distinguished colours with great accuracy by means of touch. Derham, in his *Physico-Theology*,³ mentions a similar case, and observes, that "although the eye be the usual judge of colours, yet some have

¹ See *Phren. Jour.* x. 89.

² *Sur les Fonctions du Cerveau*, tome v. p. 85.

³ Book iv. ch. 6.

been able to distinguish them by feeling." I have conversed with persons born blind, who assured me that they could form no conception whatever of colour, or of the phenomena of sight. I cannot conceive, therefore, that the blind bookseller of Augsburg, spoken of by Dr Gall, had precise notions of colours, similar to those enjoyed by persons who see. The blind man at Stirling who distinguished colours by the sense of touch was guided by differences in the texture of the objects. He practised chiefly on the dresses of the passengers in the beautiful walk round Stirling Castle ; and I have seen him, by rubbing his hand along the pile of the sleeve, distinguish, with much readiness and accuracy, a black coat, a brown coat, a blue coat, and a green coat. The skin on the points of his fingers had acquired a most extraordinary softness and delicacy, from long practice of this operation. In his mind there appears to have been a distinct tactile perception, to which he gave the name of green, another which he designated brown, and so on ; but I cannot conceive that such impressions at all resembled the common apprehensions of colours enjoyed by persons possessing perfect vision. Dr Spurzheim says : " Many blind persons have assured me of their incapacity to distinguish colours. A few, however, discern white from black, because white surfaces are in general smoother than black. When the blind pretend to distinguish colours, they do no more than determine surfaces of greater or less degrees of smoothness, without acquiring any idea of colour in itself."¹

The organ is considered as established.

27.—LOCALITY.

Dr GALL mentions, that the taste which he had for natural history induced him to go frequently into the woods in

¹ *Phrenology*, p. 226.

order to catch birds, or to discover their nests ; and although he was expert in accomplishing these objects, yet, when he wished to return to the nests, he generally found it impossible to retrace his way, or to light upon the tree which he had marked, or the snares which he had set. This difficulty did not arise from inattention ; for, before quitting the spot, he stuck branches into the ground, and cut marks on the trees, to guide him in his return, but all in vain. He was obliged to take constantly along with him one of his school-fellows, named Scheidler, who, with the least possible effort of attention, went always directly to the place where a snare was set, even although they had sometimes placed ten or fifteen in a quarter that was not familiarly known to them. As this youth possessed only very ordinary talents in other respects, Dr Gall was much struck with his facility in recollecting places, and frequently asked him how he contrived to guide himself so surely ; to which he replied, by asking Gall, in his turn, how he contrived to *lose* himself everywhere. In the hope of one day obtaining some explanation of this peculiarity, Dr Gall moulded his head, and afterwards endeavoured to discover persons who were distinguished by the same faculty. The celebrated landscape-painter Schoenberger told him, that, in his travels, he was in the custom of making only a very general sketch of countries which interested him, and that afterwards, when he wished to produce a more complete picture, every tree, every group of bushes, and every stone of considerable magnitude, presented itself spontaneously to his mind.¹ About the same period Dr Gall became acquainted with M. Meyer, author of the romance of *Dia-na-Sore*, a person who found no pleasure except in a wandering life. Sometimes he went from house to house in the country, and at other times attached himself to some man of fortune, to accompany him in extended travels. He had

¹ The organs of Form, Size, and Individuality, seem to me to have been necessary, in addition to Locality, to produce this talent. The latter faculty would recollect only the *positions* of the objects.

an astonishing faculty of recollecting the different places which he had seen. Dr Gall moulded his head also; he then placed it and the other two together, and compared them attentively: they presented great differences in many points, but he was struck with the singular form which appeared in all the three a little above the eyes, and on the two sides of the organ of Individuality; namely, two large prominences commencing near each side of the nose, and going obliquely upwards and outwards, almost as high as the middle of the forehead. From that time he was led to suppose, that the talent for recollecting places depended on a primitive faculty, of which the organ was situated under this part of the skull; and innumerable subsequent observations confirmed this inference.¹

Dr Spurzheim states, that "the special faculty of this organ, and the sphere of its activity, remain to be determined. It makes the traveller, geographer, and landscape-painter; recollects localities; and gives notions of perspective. It seems to me," says he, "that it is the faculty of Locality in general. As soon as we have conceived the existence of an object and its qualities, it must necessarily occupy a place, and this is the faculty that conceives the places occupied by the objects that surround us."² Sir George Mackenzie considers the primitive faculty to be that of perceiving *relative position*. Dr Spurzheim says, that "notions of perspective" are given by Locality, but certain facts, already noticed, appear to shew that these depend on Size: in other respects, his observations coincide with my own.

Locality appears to me to bear a relation to Individuality somewhat similar to that which *Time* bears to Eventuality. Eventuality observes motion and events, and Time conceives duration, and estimates its intervals. In order to chronicle events, we divide duration into portions, such as days, months,

¹ Nearly the whole of Dr Gall's section on Locality is translated in *The Phrenological Journal*, vol. iv. p. 524.

² *Phrenology*, p. 280.

and years, and give names to different points in it, and call these dates. Individuality furnishes us with the notion of objects as existences, and Locality conceives the idea of space, divides it into portions, and determines the position of objects within it. Places are definite positions in space, while dates are definite points in duration. *Places*, therefore, are to objects, what *dates* are to events.¹

James Wilson, whose case is mentioned on p. 70 of this volume, affords a striking example of Locality being active long after sight has been lost. A similar case is reported by Dr Joseph Moore in vol. xiv. p. 39. Philip Davis, says he, blind from the age of four years, "knows the various streets, courts, and alleys of Plymouth better than any inhabitant, and can not only direct, but shew their locality." He also makes excursions alone to the distance of several miles from the town. The organ of Locality is very large in his head. See also the same volume of the Journal, p. 45.

Persons in whom this organ is large, form vivid and distinct conceptions of situations and scenery which they have seen or heard described, and they have great power in recalling such conceptions. When the faculty is active from internal excitement of the organ, such ideas are presented to the mind involuntarily. In the mask of Sir Walter Scott the organ is large. Readers, similarly endowed, are almost as much delighted with his descriptions of scenery, as by a tour made by themselves amid the mountain glens; while those in whom the organ is small, are quite uninterested by his most splendid poetical landscapes. He wrote so pictorially,

¹ Mr W. Hancock jun. has published an able essay on Locality, in the *Phrenological Journal*, vol. x. p. 462, in which he maintains that "the two organs now called Weight and Locality are in reality but one, subserving to the faculty of direction, and that direction or relative position is only an ingredient, though probably the principal one, in the recollection of places." Mr Sampson has stated his own experience in contradiction to this view. In his head Locality is deficient, and he does not recollect places, but he judges easily and accurately of *direction*. He refers direction to *weight*. *Phren. Journ.*, vol. xii. p. 366.

that he almost saves an artist, who means to illustrate his pages, the trouble of invention.

Authors in whom this organ is moderately developed treat of places in a very different manner. In the head of Mr Tennant, the author of *Anster Fair* and *The Thane of Fife*, the organ of Locality is below the average size, and he merely designates, by appropriate epithets, the leading features of a landscape, in a way which excites a pleasing and distinct recollection of it in those readers who have seen it, but which calls up no picture in the mind of one who was not familiar with it before. The following lines are characteristic of his manner :

“ Next them the troopers each on fervent steed
 That dwell *within the warm and flowery dales*
Where Annan, and where Esk and Liddle lead
Their streams down tripping through the sunny vales,
 And where the stronger and more swelling Tweed,
Emergent from his midland mountain, trails
Voluminous and broad his waters down
 To meet the briny sea by bulwark'd Berwick town.”

The organ is large in the busts and portraits of all eminent navigators and travellers, such as Columbus, Cook, and Mungo Park ; also in great astronomers and geographers, as Kepler, Galileo, Tycho Brahé, and Newton. In Tasso the poet, also, it appears to have been very large, and he manifested the faculty in a high degree. Several cases are mentioned by Dr Gall, of individuals passionately fond of travelling, in whom the organ was greatly developed ; and a similar instance is reported by Mr Schiotz, a Danish magistrate, in *The Phrenological Journal*.¹ Dr Caldwell speaks of an American named Daniel Boone, “ who was perpetually in motion from one place to another, and who was the most celebrated hunter and woodsman of the age :” he possessed this organ “ in a degree of development, so bold and prominent, that it deformed his face.”²

¹ Vol. viii. p. 64.

² Caldwell's *Elements of Phrenology*, p. 124.

This faculty gives what is called "*coup d'œil*," and judgment of the capabilities of ground. It is necessary to the military draughtsman, and is of great importance to a general in war. Dr Gall mentions, that he had observed the organ large in distinguished players at chess ; and he conceives their talent to consist in the faculty of conceiving clearly a great number of the possible positions of the men.

Some persons have a natural tact in discriminating and recollecting the situation of the organs on the phrenological bust, and perceiving differences in the forms of the head, while others experience the greatest difficulty in doing so. The former have Locality, Size, and Form large ; the latter have them small, indicated by a general narrowness at the top of the nose. These state their own inability to observe the organs, as an objection against Phrenology ; but this is as unreasonable as if Mr Milne were to deny the diversity of certain colours, because his own organ of Colouring is so defective that he cannot distinguish them.

Locality appears to be an element in a genius for geometry. In the heads or busts of six or seven eminent mathematicians which I have carefully examined, this organ, and also those of Size, Individuality, and Comparison, are large. Indeed pure geometry treats only of the relations of space, and does not imply agency, or any relation except that of proportion ; and hence it might be legitimately inferred to belong to the sphere of the organs now mentioned. Negative cases also coincide with these positive observations. Zhera Colburn, the American youth who was celebrated for his arithmetical powers, turned his attention to mathematics, but with very little success. He stated to me that he had been taught the first six books of Euclid, and understood the propositions, but felt no interest in the study. He liked algebra much better ; and he had the organ of Number large, but that of Locality deficient. The gentleman who had taken charge of his education, it is said, at first intended him for a mathematician, but afterwards, finding that his genius did not lie that way, directed his attention to law. (See foot-note

on p. 86.) Mr George Bidder, when a mere child, displayed such astonishing talent as a mental calculator, that several gentlemen in Edinburgh were induced to take charge of his education ; and, on the supposition that his abilities extended to mathematical science generally, selected for him the profession of an engineer. Having heard of this intention, and having observed that in his head the organs of the geometrical faculties were not developed in any extraordinary degree, I inferred that his eminence as a geometrician would not equal that which he had attained as a calculator, and communicated this conviction in writing to Principal Baird, one of his patrons. Mr Bidder subsequently pursued the study of geometry ; but, at the end of two years, both he himself and Professor Wallace informed me, that he was not distinguished for more than common ability in the class.

An opinion prevails, that mathematics afford exercise to the reflecting faculties, and that their tendency, as a branch of education, is to cultivate the talent for general reasoning : some persons regard them as the best substitute for the useless logic of the schools. This idea appears to me to be erroneous. Geometry treats of the proportions of space, and algebra and arithmetic of the relations of numbers, and the three constitute the grand elements of the science of pure mathematics. For judging of the proportions of space, the faculties of Size, Locality, and Individuality, aided by Comparison, are those essentially required ; while the faculties of Number and Order, also aided by Comparison, are the chief powers necessary for dealing with the proportions of numbers. Causation always implies power, force, 'or agency ; and the idea of causation, or efficiency, does not at all enter into the propositions of pure mathematics. The popular error is not sanctioned by the authority of the masters in philosophy. Lord Bacon observes, that " the mathematical part in some men's minds is good, and the logical is bad. Some can reason well of numbers and quantities, that cannot reason well in words." Dugald Stewart remarks, that " when it is stated in the form of a self-evident truth, that

magnitudes which coincide, or which exactly fill the same space, are equal to one another, the beginner readily yields his assent to the proposition ; and this assent, without going any farther, is all that is required in any of the demonstrations of the first six books of Euclid."¹ Mr Stewart was a mathematician, and also a metaphysician ; and this is a strong testimony to the fact, that the whole of the first six books of Euclid, which constitute a large portion of a common mathematical education, relate exclusively to the proportions of space or magnitude, and do not imply causation.

Professor Leslie states, that the *whole structure of geometry is grounded on the simple comparison of triangles* ; and Mr Stewart corrects this remark by observing, that "it is expressed in terms too unqualified. D'Alembert has mentioned another principle, as not less fundamental, the measurement of angles by circular arches." It is obvious, that both triangles and circular arches are mere forms of space. "Fluxions," says Professor Playfair, "were, with Newton, nothing else than *measures of the velocities* with which variable or flowing *quantities* were supposed to be generated, and they might be of any magnitude, providing they were in the ratio of those velocities, or, which is the same, in the ratio of the nascent or evanescent increments."² Sir John Herschel remarks, that "it must be recollected that there are minds which, though not devoid of reasoning powers, yet manifest a decided inaptitude for mathematical studies,—which are *estimative*—not *calculating*, and which are more impressed by analogies, and by apparent preponderance of general evidence in argument, than by mathematical demonstration, where all the argument is on one side, and no shew of reason can be exhibited on the other. The mathematician listens only to one side of a question, for this plain reason, that no strictly mathematical question *has* more than one side capable of being maintained otherwise than by simple assertion ; while all the great questions which arise in busy

¹ *Philosophy of the Human Mind*, vol. ii. p. 174, edit. 1816.

² Dissertation II. *Encyc. Brit.* p. 16.

life, and agitate the world, are stoutly disputed, and often with a shew of reason on both sides, which leaves the shrewdest at a loss for a decision."¹

In these remarks I allude merely to pure mathematics, or to geometry and its branches, with algebra and arithmetic and their branches. Although these sciences do not treat of causation, yet they may be applied to measure forces, in instances in which these operate with undeviating regularity. Gravitation is such a force.—But wherever agents do not operate in this manner, mathematics are inapplicable. Human actions, for instance, proceed from intellectual perceptions, the impulses of affection, or the force of passion; all of which are causes, but none of them possesses that simplicity of character and uniformity of operation which are indispensable in the application of mathematical measurements. In judging of human conduct, the understanding must *estimate* by innate sagacity, improved by experience, the influence of motives and of external circumstances; and a high mathematical training, by exercising chiefly the powers conversant with space and quantity, is by no means favourable to the development of this talent, which depends chiefly on Comparison and Causality, operating along with the affective faculties. Hence an individual may be distinguished for talent as a mathematician, and extremely deficient in this estimative sagacity.

It is worthy of remark, that the French mathematicians use the word *donc* "then," where the English use "therefore" in their demonstrations. The French *donc* corresponds with the Latin *tunc*, and with the English *then*, or *at that time*, and it is the more correct expression. In a purely mathematical demonstration, the conclusion becomes apparent at a particular point of time, when the proposition and its relations have been unfolded, without the least idea of active

¹ *Views on Scientific and General Education, applied to the proposed System of Instruction in the South African College*; reprinted in *The London and Edinburgh Philosophical Magazine and Journal of Science*, vol. viii. p. 432, No. 48. May 1836.

efficiency in the premises to produce the conclusion as an effect ; whereas the word *therefore* expresses a necessary result of efficiency. In the proposition " The sun shines brilliantly, *therefore* we are hot ;" the word *therefore* implies a relation of causation ; whereas in the proposition, ' A is equal to B, and C is equal to B, *therefore* A and C are equal to one another ;' the relation which it expresses is one of proportion merely, and the French *then* is the more philosophical term.

When the group of organs situated at the top of the nose, namely, Individuality, Form, Size, Weight, and Locality, are all large, there is generally a strong talent for dynamics. Persons thus endowed excel in turning, and in archery ; and if Constructiveness also be full, and they have been bred to professions in which they find no scope for these faculties, they frequently set up private workshops, and become inventors and improvers of machinery.

The organ of Locality is generally much larger in men than in women ; and the manifestations correspond.

Dr Gall cites several cases of diseased affection of this organ ; and in *The Phrenological Journal*,¹ Mr Simpson gives a highly interesting detail of symptoms attending disorder of this and the other knowing organs already treated of. He adverts particularly to the case of Mr John Hunter, who, when in the house of a friend, forgot in what part of the town he was, and looked out of the window to refresh his memory in vain ; for, as Sir Everard Home expresses it, " he had not a conception of any place existing beyond the room he was in, yet was perfectly conscious of the loss of memory."²

This organ is possessed by the lower animals, and many interesting examples are recorded of their manifestations of the faculty. Dr Gall mentions several instances of dogs returning to their homes from a great distance, without the

¹ Vol. ii. p. 303. See also vol. vii. p. 317.

² Life of John Hunter, annexed to his *Treatise on the Blood, Inflammation, and Gunshot Wounds*, published by Sir E. Home in 1794.

possibility of their having been guided by smell or sight. "A dog," says he, "was carried in a coach from Vienna to St Petersburg, and at the end of six months reappeared in Vienna: Another was transported from Vienna to London;—he attached himself to a traveller, and embarked along with him; but at the moment of landing, he made his escape and returned to his native city. Another dog was sent from Lyons to Marseilles, where he was embarked for Naples, and he found his way back by land to Lyons." An ass, shipped at Gibraltar, on board the *Ister* frigate, in 1816, was thrown overboard, when the vessel struck at Point de Gat, in Spain, a distance of 200 miles. There were holes in his ears, indicating that he had been used for carrying criminals when flogged; and as such asses are abhorred by the peasantry, no one stopped him, and he immediately returned, through a mountainous and intricate country intersected by streams, to Gibraltar.¹ Dr Gall remarks that the common hypothesis, that dogs retrace their way by the aid of smell, when applied to cases in which they were transported by water, or in a coach, appears abundantly absurd; and the idea that these animals can discover the effluvia of their master's person across a space of several hundred leagues, seems equally preposterous. Besides, a dog does not return home by the straightest road, nor even by the precise line in which he was carried away; and some naturalists have therefore been induced to admit an occult cause of this surprising talent, and have named it a *sixth sense*. Dr Gall considers it to belong to the organ of Locality. The falcon of Iceland returns to its native place from a distance of thousands of miles; and carrier-pigeons have long been celebrated for a similar tendency, and in consequence have occasionally been employed to convey dispatches. Swallows, nightingales, and a variety of sea-fowls, migrate from one climate to another at certain seasons of the year, which is attributed by Dr Gall to periodical and involuntary excite-

¹ Kirby and Spence's *Entomology*, p. 496.

ment of the organ of Locality. This excitement occurs even in birds kept in cages, and abundantly supplied with food.¹

Dr Vimont has published some valuable observations on this faculty. He does not consider it to be the sole cause of the migration of animals. He thinks that the inclemency of the season, also the organs of "distance," "resistance," and "time," may contribute to their movements. He indicates the precise place of the organ in several species of the lower animals, and corrects Dr Gall's errors in regard to its situation in them. He says that it is very large in the dog, fox, and horse.

The frontal sinus has been stated as an objection to the possibility of ascertaining the size of the organ of Locality, but it rarely ascends higher than the lower part of it; and while prominences formed by the sinus are irregular in form, and generally horizontal in direction, the elevations occasioned by a large development of Locality are uniform in shape, and extend obliquely upwards towards the middle of the forehead. Further, the negative evidence in favour of the organ (explained on page 34) is irresistible, and the function is therefore regarded as established.

28.—NUMBER.

A scholar of St Poelton, near Vienna, was greatly spoken of in that city, on account of his extraordinary talent for calculation. He was the son of a blacksmith, and had not received any particular instruction beyond that bestowed on other boys at the same school; and in all other respects he was nearly on a footing of equality with them. Dr Gall induced him to come to Vienna, and, when he was nine years of age, presented him to his audience. "Lorsqu'on lui donnait," says Dr Gall, "je suppose, trois nombres exprimés chacun par dix à douze chiffres, en lui demandant de les additionner, puis de les soustraire deux à deux, de les multi-

¹ See Remarks on Carrier-pigeons, *Phren. Journ.* vol viii. p. 71.

plier et de les diviser chacun par un nombre de trois chiffres ; il regardait une seule fois les nombres, puis il levait le nez et les yeux en l'air, et il indiquait le résultat de son calcul mental avant que mes auditeurs n'eussent eu le temps de faire le calcul la plume à la main. Il avait créé lui-même sa méthode." A barrister of Vienna stated his regret that his son, of five years of age, occupied himself exclusively with numbers and calculation, in such a manner that it was impossible to fix his attention on any other object, even the games of youth. Dr Gall compared his head with that of the boy just mentioned, and found no particular resemblance, except in a remarkable prominence at the external angle of the eye, and a little to the side. In both, the eye was in some degree covered by the outer extremity of the eyebrow. These cases suggested the idea that the talent for calculation might be connected with a particular organ ; and, in order to verify the discovery, Dr Gall sought for men distinguished for this power. He repaired to the Councillor Mantelli, whose favourite occupation was to invent and solve problems in mathematics, and particularly in arithmetic, and found in him the same configuration. He next went to Baron Vega, author of *Tables of Logarithms*, at that time professor of mathematics, and who, in every other talent, "était un homme fort médiocre," and found in his head the same peculiarity. He then visited private families and schools, and desired the children distinguished for ability in calculation to be pointed out to him ; and still the same development recurred. He therefore felt himself constrained to admit a special organ and faculty for this talent.

Sir Whitelaw Ainslie reports, in *The Phrenological Journal*, the case of a boy whom he met in a stage-coach, and who attracted his attention by a remarkable development of the organ of Number, which projected so much as to be "nearly of the size of half a common marble, and not unlike it in shape." On asking the boy's father whether he was not an excellent arithmetician, Sir Whitelaw was informed, that, in arithmetic, he excelled all the other boys at school, and

could multiply six figures by other six without the aid of a pencil.¹

The organ, when large, fills up the head above and outside of the external angle of the eye, a very little below the point called the external angular process of the frontal bone.

The special function of the faculty seems to be calculation in general. Dr Gall calls it "*Les sens des nombres*;" and, while he states distinctly that arithmetic is its chief sphere, he regards it as also the organ of mathematics in general. Dr Spurzheim, on the other hand, limits its functions to arithmetic, algebra, and logarithms; and is of opinion that the other branches of mathematics, such as geometry, are not the simple results of this faculty. In this analysis he appears to me to be correct. Mr George Bidder, when only seven years of age, and without any previous instruction, shewed an extraordinary talent for mental calculation; and I have seen him, when only eleven, answer the most complicated questions in algebra, in a minute or a minute and a half, without the aid of notation. When he first came to Edinburgh, and before I had seen him, a gentleman waited on me, accompanied by three boys of nearly equal ages, and said—"One of these is George Bidder, the celebrated mental calculator; can you tell which is he by his head?" On examining the organ of Number in all of them, I replied that one of them should be decidedly deficient in arithmetical talent; that another should possess it in a considerable degree; but that the third must be Bidder, because, in him, the organ was developed to an extraordinary extent. The gentleman then stated that the indications were perfectly correct; that the first was a boy who had been remarked as dull in his arithmetical studies; the second was the most expert calculator selected from a school in Edinburgh; and the third was Bidder. Dr Gall mentions a similar experiment which was tried with him, and with the same result. He gives a detailed account of Zhera Colburn, the American youth who exhibited great talents for calculation, and in

Phren. Journ. vi. 107. See another case, vol. iii. p. 266; also iii. 561.

whom also the organ was large. This young man visited Edinburgh, and afforded the phrenologists of this city an opportunity of verifying Dr Gall's observations, which were found to be correct.¹ Masks of him and of Bidder were taken, and now form part of the Phrenological Society's collection. These two examples tend to shew that Dr Spurzheim is right in limiting the function of this faculty to calculation of numbers; as neither of these young men proved so eminent in geometry as in arithmetic and algebra.

The organ is large in the mask of Humboldt, brother of the traveller, and he was celebrated for his powers of calculation.

In the *Phrenological Journal*, vol. x. p. 411, the case of the daughter of a lady of rank resident in London, in whom the organ was very large, is reported. The lady mentioned, that when she rode out to make calls, instead of taking *cards* with the *numbers* of the residences of those upon whom she meant to call—as is usual in London—she took her child (then *five* years of age) with her in the carriage, and upon the name of any individual being mentioned, the child would instantly remember the *number* of the house. She added, that the child remembered the numbers of the residence of at least *three hundred* ladies. The child had *Locality* large as well as number.

There are some facts which appear to indicate, that the organ of number is important in constituting a talent for chess-playing. See *Phrenological Journal*, xv. p. 92.

I am acquainted with other individuals, and include myself among the number, in whom this organ is deficient, and who experience great difficulty in solving the most ordinary arithmetical questions—who, indeed, have never been able to learn the multiplication table, or to perform readily, common addition and subtraction, even after persevering efforts to attain expertness. The organ is small in the mask marked "French M. D.;" which serves as a contrast, in this respect, to those before mentioned, in which it is large.

¹ He was not distinguished by high intellectual talents in other respects. He subsequently became a preacher in New England, and manifested only average abilities. He was born in 1804, and died in 1838.

Dr Gall observes, that when this organ predominates in an individual, all his faculties receive an impression from it. He knew a physician in whom it was very large, who laboured to reduce the study of medicine, and even the virtue of particular medicaments, to mathematical principles; and one of his friends, thus endowed, endeavoured to found an universal language on similar grounds.

This organ probably assists Eventuality and Time in recollecting dates. Form, however, seems also to aid them in this effort, by retaining before the mind the idea of the printed numerals.

Dr Spurzheim mentions, that "certain races of Negroes make five the extent of their enumeration, that is, they count only as far as five by simple terms; all their numbers after five are compound, whereas ours are not so till they have passed the number ten; while our terms, six, seven, &c. are simple, they say five-one, five-two, five-three, &c. Negroes in general," he continues, "do not excel in arithmetic and numbers; and, accordingly, their heads are very narrow in the seat of the organ of number." Humboldt also mentions that the Chaymas (a people in the Spanish parts of South America) "have great difficulty in comprehending any thing that belongs to *numerical* relations;" and that "the more intelligent count in Spanish, with an air that denotes a great effort of mind, so far as 30, or perhaps 50;" he adds, that "the corner of the eye is sensibly raised *up* towards the temples."¹ The organ of Number is remarkably small in the skulls of the Esquimaux, and both Parry and Lyon notice that their eyes are turned up at the exterior angle: they have the peculiarity of "not being horizontal as with us, but coming much lower at the end next the nose than at the other."² Captain Back adverts to the same peculiarity in an Esquimaux woman whom he describes.³ This "remarkable

¹ *Personal Narrative*, vol. iii. pp. 223, 241, 242.

² Parry's *Voyages*, 12mo, vol. v. p. 184.

³ *Narrative of the Arctic Land Expedition in 1833-4-5*, London, 1836, p. 384.

formation of the eye," says Captain Lyon, "is in all alike."¹ Accordingly, Captain Parry speaks of their "imperfect arithmetic, which resolves every number above ten into one comprehensive word."² The Arctic Highlanders of Captain Ross are unable to reckon farther than five; and, in answer to his inquiries concerning the numbers of the tribe, they could only say that there were "plenty people." Others, however, could reckon ten.³ Nor is the skull of the other Greenland tribes much superior. Their numerals, says Crantz, "fall very short, so that they verify the German proverb, that they can scarce count five: however, they can make a shift with difficulty to mount as high as twenty, by counting the fingers of both hands, and the toes of both feet. When the number is above twenty, they say, 'it is innumerable.'"⁴

It is mentioned by Dr Gall, that two of his acquaintances felt pain in the region of this organ, after being occupied for several days in succession with difficult calculations. In the Hospital of Vienna, he saw a patient whose insanity degenerated into idiocy, but who nevertheless occupied himself solely with counting. He stopped, however, regularly at ninety-nine, and could never be induced to say one hundred, but recommenced counting at one. M. L. A. Gœlis, in his *Treatise on Chronic and Acute Hydrocephalus*, mentions the case of a boy, who, though stupid in every other respect, still manifested, in his twelfth year, an astonishing memory for numbers, and a strong feeling of Benevolence; which qualities, however, he adds, disappeared in proportion as his malady, hydrocephalus, increased. In the *Journal Generale de Médecine*,⁵ a young Englishman is mentioned, who had a nervous attack each alternate day, during which he saw and

¹ *Private Journal*, p 309.

² Vol. v. p. 319.

³ *Ross's Voyage*, London, 1819, pp. 95, 127.

⁴ *Crantz's History of Greenland*, vol. i. p. 225. See *Remarks on the Character and Cerebral Development of the Esquimaux*, by Mr Robert Cox, *Phren. Journ.* vol. viii. p. 436.

⁵ Tome xl. p. 155.

heard nothing, as was verified by experiment, and who yet occupied himself particularly with mathematics, arithmetic, and logarithms, and solved with ease new and difficult problems. In October 1835, I saw, in the Lunatic Asylum at Newcastle, a patient named Marshall, in whom the organ of Number was very largely developed, and it was mentioned by Mr Macintosh, the resident surgeon, that he was distinguished by a "love of arithmetic and accounts, and was perpetually employed in figures:" His hands were confined to prevent him from scratching numerals on the walls, and he then used the tip of his tongue, and traced them with saliva on the stones. I saw his tongue excoriated at the point with this exercise.

It seems difficult to determine whether or not this faculty exists in the lower animals. George Le Roy mentions that an ambush was formed, into which one man entered, to shoot a magpie, whose nest was in a tree above it. She kept her nest while he remained, and was safe. Two men entered, one left, and one remained. She still kept her nest. Three entered, and two went away. She still remained concealed. He therefore concludes that magpies count three. Six men entered and five went away. She was deceived, came forth, and was shot. Dupont de Nemours asserts that they count nine. Dr Gall does not attempt to decide the question. Dr Vimont mentions an experiment which convinced him that dogs have an idea of numbers. At a certain hour of twelve successive evenings, he gave a dog three balls of meat, which he threw into different parts of the room. Afterwards he kept one of them on the table, and threw down the other two. The animal came for them as usual, but not finding the third ball, began to search for it in every part of the room, and barked in order to obtain it : when Dr Vimont threw down the third ball its cries immediately ceased. Its behaviour was the same when four or five pieces of meat were used.¹

The organ is regarded as established.

¹ *Traité de Phrénologie*, tome ii. p. 321.

29.—ORDER.

ORDER supposes a plurality of objects ; but one may have ideas about a number of things and their qualities, without considering them in any order whatever. Every arrangement of physical objects is not equally agreeable to the mind ; and the disposition to be delighted with order, and distressed by disorder, is not in proportion to the endowment of any other faculty. There are individuals who are martyrs to the love of order—who are distressed beyond measure by the sight of confusion, and highly satisfied when every thing is well arranged. These persons have the organ in question large. The sort of arrangement, however, prompted by this faculty, is different from, although perhaps one element in, that philosophical method which is the result of the perception of the relations of things. The faculty of which we here speak, gives method and order in arranging objects, as they are physically related ; but arrangement founded on logical inferences, the conception of systematizing or generalizing, and the idea of classification, are formed by the reflecting faculties. Dr Spurzheim mentions, that the Sauvage de l'Aveyron at Paris, though an idiot in a very high degree, could not bear to see a chair or any other object out of its place ; and that as soon as anything was deranged, he, without being excited to it, directly replaced it. He likewise saw in Edinburgh a girl, who in many respects was idiotic, but in whom the love of order was very active. She avoided her brother's apartment, in consequence of the confusion which prevailed in it.

Dr Gall states, that he has met with facts which strongly indicate that "order" depends on a primitive faculty ; but that, on account of the difficulty of observing the organs placed in the superciliary ridge, and the small size of this organ in particular, as pointed out by Dr Spurzheim, he had not been able to collect a sufficiency of determinate facts to authorize him to decide on its situation.¹

¹ *Sur les Fonctions du Cerveau*, tome iv. p. 467.

I have seen many instances in confirmation of this organ. The late Mr James Law, Fellow of the Royal College of Surgeons of Edinburgh, whose mask is sold as an illustration of it, had a large development ; and his love of regularity and order was conspicuous in all his professional and domestic occupations. He observed his appointments in the most exemplary manner ; wrote his letters and papers with the greatest neatness and care ; kept his accounts with invariable regularity ; and was remarkable for his neat style of dress, as well as for the high state of order in which his articles of apparel were always arranged in his wardrobe. On each superciliary ridge of his cast, there is an elevation resembling a small pea, which is frequently mistaken for this organ ; but it appears to be merely a projecting point of the frontal bone, to which some fibres of the temporal muscle are attached. The development of the organ is indicated by a great fulness, producing a square appearance at the external angles of the lower part of the forehead.— This trait of character is hereditary in Mr L.'s family : it was transmitted to him by his father (whose portrait indicates a large development), and has descended in greater and less degrees to the members of a large family of sons. Every article which Mr L.'s father carried about his person had its appropriate pocket, into which it was put with unfailing regularity. It is related of him, that, on one occasion, not finding his penknife in its accustomed place, he summoned his servants and some young relatives before him, and demanded whether they had seen it. Being answered in the negative, he at once unhesitatingly declared that the knife "*must have been stolen*," and upon being requested to search his other pockets, he actually lost his temper, and exclaimed with great warmth that the knife had not been in any other pocket for twenty years. At length, however, he was prevailed on to search another pocket, and blushed deeply on finding the strayed article. Mr L. had a very equal general development of brain, which aided Order in producing his general regularity of conduct. In the masks

of Mr Douglas, the miniature painter, and of Dr Franklin, both of whom were remarkable for order, the organ is largely developed. I have seen other cases, in which this part of the brain was very small, and the love of order was extremely deficient.

The mode in which a person is trained in youth has a marked influence on the activity of this organ. If brought up by regular and orderly parents, the individual will be much more distinguished by the same qualities than if his early years had been spent in the midst of disorder and dirt.

In the skulls of the Esquimaux, the organ is small; and all the navigators who have visited them agree in describing their habits as most filthy, slovenly, and disgusting.¹

On the whole, therefore, I am disposed to admit the organ as ascertained. It is large in the mask marked "French M. D.," and in Humboldt, brother of the traveller; it is small in Anne Ormerod.

Dr Vimont thinks that the lower animals possess it; but he has not ascertained the situation of the organ in them.

30.—EVENTUALITY.

THIS organ, when large, gives prominence or a rounded fulness to the middle of the forehead.

PITT.



22. Individuality moderate.

30. Eventuality large.

34. Comparison rather large.

MOORE.



22. Individuality large.

30. Eventuality small.

34. Comparison very large.

SMERIDAN.



22. Individuality large.

30. Eventuality large.

34. Comparison full.

¹ See ample details in *The Phrenological Journal*, vol. viii. p. 435.

After Dr Gall had discovered an external sign of the talent for learning by heart, he was not long in perceiving that it by no means indicated every species of memory. He observed, that, among his schoolfellows, some excelled in verbal memory, and remembered even words which they did not understand ; while others were deficient in this qualification, but recollected with uncommon facility facts and events : some were distinguished by a great memory of places ; some were able to repeat, without mistake, a piece of music which they had heard only once or twice, while others excelled in recollecting numbers and dates ; but no individual possessed *all* these talents in an equal degree. Subsequently to these observations, he learned that philosophers before him had arrived at similar conclusions, and had distinguished three varieties of memory—memory of things, “ *memoria realis* ;” verbal memory, “ *memoria verbalis* ;” and memory of places, “ *memoria localis*.” In society, he observed persons who, though not always profound, were learned, had a superficial knowledge of all the arts and sciences, and knew enough to be capable of speaking on them with facility ; and he found in them the middle of the lower part of the forehead very much developed. At first he regarded this as the organ of the “ memory of things ;” but, on farther reflection, he perceived, that the name “ memory of things” does not include the whole sphere of activity of the faculty now under consideration. He observed, that persons who had this part of the brain large, not only possessed a great memory of facts, but were distinguished by prompt conception in general, and an extreme facility of apprehension ; a strong desire for information and instruction ; a disposition to study all branches of knowledge, and to teach these to others : and also, that, if not restrained by the higher faculties, such persons were naturally prone to adopt the opinions of others, to embrace new doctrines, and to modify their own minds according to the manners, customs, and circumstances by which they were surrounded. He therefore rejected the name “ memory of things,” and adopted the appellations *Sens des choses*, *sens d’éducabilité*, *de perfectibilité*, to distinguish this faculty.

Dr Gall's observations apply to the part of the brain comprising the organs now designated Eventuality and Individuality ; he did not treat of them as separate organs. We owe to Dr Spurzheim the correct indication of the functions of each.

The function of Eventuality is to take cognizance of changes, events, or active phenomena, indicated by active verbs. It observes motion, in such expressions as the ROCK *falls*, the HORSE *gallops*, the RIVER *runs*, the substantive springs from Individuality, and the verb from Eventuality. Two gentlemen went to see a review, of two or three thousand soldiers. After the review, a friend asked one of them *what regiments* were on the ground. He could not tell. "Did you not observe the numbers on their knapsacks?"—No, I did not.—"Did you observe the facings of their coats?" "No."—"Then, pray what *did you observe*?"—"I observed the *Evolutions*. The men came on the ground in marching columns ; they formed line ; then column again ; then hollow squares ;" and he proceeded to describe all their movements. In his head Eventuality was large, and Individuality deficient. Another gentlemen, who heard this discourse, said, "My observations took a different direction. I noticed the numbers painted on the knapsacks of the men, indicating the regiments ; the facings, the particular officers who commanded, &c., but I could not recall the evolutions, as Mr A. has done." In this person Individuality was large, and Eventuality deficient.

In visiting the State Prison of Connecticut, in the United States, on 22d October 1839, I observed that the head of Mr Pillsbury, the superintendent of the prison, presented a deficient organ of Individuality, with a large organ of Eventuality ; on which the Reverend Mr Gallaudet, who accompanied me, without giving any explanation to Mr P. of the object of his enquiry, asked him whether, in seeing a review, he would observe, and recollect best the appearance of the men or the evolutions ; he replied instantly, "the evolutions."

In *The Athenological Journal*, vol. xii. p. 257, Mr W. R.

Lowe reports the following case :—"In Mrs T——, a well-educated, married lady, aged between forty-five and fifty, Eventuality and Time are developed to an unusual extent ; the surface of these two organs occupying nearly half the entire intellectual region, and their prominence being such as to give to the forehead quite an arched or semicircular appearance ; and, from a long intimacy having existed between us, I can with truth bear testimony to the correspondence of the power of these faculties with the cerebral organization. She is, indeed, as the phrenologist would expect, a complete walking almanac, a kind of animated calendar of births, deaths, historical occurrences, and events generally, and has been from quite childhood (as I am informed) a never failing book of reference for her family and friends. The following anecdote will, however, give some idea of her memory of events. Two ladies, who had each given birth to a child in the space of a fortnight, were recently disputing as to which of the two children was the elder ; the birth-day of the one was distinctly remembered, but they were undecided as to whether the other was a fortnight older, or a fortnight younger. Mrs T. happening, however, to call just at this juncture, she was asked if she could settle the dispute ; and although she had never heard the date of the birth-day of either of the children mentioned, so vivid and accurate was her recollection of the event, that, without the slightest consideration (turning to one of the ladies) she answered, " Your child is the elder, for he was born on Sunday, May 5th, 1828, and yours " (addressing the other lady) " was born a fortnight afterwards, on Saturday, the 19th."

In the course of an evening spent a few weeks ago with Mrs T., she shewed, in a variety of instances (by answering questions put with a view of ascertaining the extent of her memory of events, and telling, for instance, the days of the birth and death of Burns, Scott, and other men of eminence, the dates of the opening of several railways, &c.) that the energy of the faculties of Eventuality and Time exactly corresponds with the size of their organs. To relate all these

instances would be making my communication too prolix ; one other may, however, be given. I asked her if she could recollect the date of the opening of the church at Ironbridge, in Shropshire (not very far from her residence) ; when, without a moment's hesitation, she replied, " Yes ; it was intended to have been consecrated and opened on Thursday, July 27th, 1837 ; but as the Bishop (of Hereford) died on Monday the 24th, it did not take place until Thursday, October 26th." It is almost needless to add, that, on subsequent enquiry, I found these dates correct.

" In addition to Mrs T.'s wonderful recollection of events, she also possesses, in a considerable degree, the power of remembering the genealogies of families ; being able to trace back, with little or no consideration, through several generations, the pedigrees of most of the nobility, with whose names she is familiar. It is, however, I suppose, questionable whether this can be referred to Eventuality alone or not." I consider Eventuality the chief ingredient in this kind of memory.

Eventuality prompts to investigation by experiment, while Individuality leads to observation of existing things. Individuality gives the tendency to ascribe existence to abstract ideas, such as Ignorance or Wisdom ; and Eventuality to represent them as acting. In a work written by an author with whom I was acquainted, and in whom both of these organs were large, Ignorance and Common-sense were represented as personages who addressed the people, excited them to action, and themselves performed a variety of parts ; Ignorance " stole a march on Common-sense," who, by dexterous expedients, extricated himself from the difficulty. An author in whom Individuality is large and Eventuality small, will treat his subjects by description chiefly ; and one in whom Eventuality is large, and Individuality small, will narrate actions, but deal little in physical description.

Sheridan possessed both organs large, with those of Size and Locality amply developed ; and the following passage affords an example of the prominence which the physical ap-

pearances of objects obtain in his composition. Speaking of a woman and her husband, he says—"Her fat arms are strangled with bracelets, which belt them like corded brawn.—You wish to draw her out as you would an opera-glass—A long lean man, with all his arms rambling; no way to reduce him to compass, unless you could double him up like a pocket-rule.—With his arms spread he'd lie on the bed of Ware, like a cross on a Good Friday bun.—If he stands cross-legged, he looks like a caduceus, and put him in a fencing attitude, you would take him for a chevaux-de-frise; to make any use of him, it must be as a spontoon or a fishing-rod.—When his wife's by, he follows like a note of admiration.—See them together, one's a mast, and the other all hulk,—she's a dome, and he's built like a glass-house;—when they part, you wonder to see the steeple separate from the chancel, and were they to embrace, he must hang round her neck like a skein of thread on a lace-maker's bolster; to sing her praise, you should choose a rondeau, and to celebrate him you must write all alexandrines."

In the busts and portraits of Pope, Individuality is greatly inferior in dimensions to Eventuality; and this author rarely excels in describing physical appearances, while he surpasses in representing action. The following lines from *The Rape of the Lock* are intended to describe a beautiful lady; but it will be observed that they represent action, condition, and quality, almost to the exclusion of substantive existence, with its attributes of form, colour, size, and proportion.¹

"Not with more glories in the ethereal plain,
The sun first rises o'er the purpled main,
Than, issuing forth, the rival of his beams
Launched on the bosom of the silver Thames.
Fair nymphs and well-dressed youths around her shone;
But every eye was fixed on her alone.

¹ Some acute and interesting observations by Mr Hewett Watson, on the relation between the writings of these and other authors, and their cerebral organs, will be found in *The Phrenological Journal*, vol. vi. pp. 383, 451.

On her white breast a sparkling cross she wore,
 Which Jews might kiss, and infidels adore.
 Her lively looks a sprightly mind disclose,
 Quick as her eyes and as unfixed as those :
 Favours to none, to all she smiles extends :
 Oft she rejects, but never once offends.
 Bright as the sun her eyes the gazers strike ;
 And, like that sun, they shine on all alike.
 Yet graceful ease, and sweetness void of pride,
 Might hide her faults, if belles had faults to hide :
 If to her share some female errors fall,
 Look on her face, and you'll forget them all."

This organ is often largely developed in children, and gives them an appetite for knowledge, in the form of stories and narratives. In practical life, it gives chiefly the talent of observing, recollecting, and describing action ; in other words, of observing the occurrences of which history is composed, and of telling the story of what we know. When deficient, great difficulty is experienced in observing, recollecting, and describing active phenomena. Captain Marryat's novels exhibit the faculty strongly, and the organ appears to be large in his portrait. The writings of Godwin shew little of it, and in his mask the organ is small. Mr Charles Meymott mentions, in the *Phrenological Journal*, vol. xiii. p. 260, that although he remembered the appearance of a certain person whom he had previously known, he could not recollect "when, where, or how often he had seen him, his name, occupation, or indeed any event whatever relating to him. This," says he, "is only one instance out of many of the same kind that are continually occurring to me." He adds, that in his head the organ of Eventuality is "relatively much smaller than the surrounding organs."

If Eventuality be large, and Concentrativeness deficient, the qualities of observation and narration may be possessed, but the narrative will resemble a description of figures in a carnival ; it will be full of life, action, and incident, but deficient in onward continuity : with Concentrativeness large, the story would more nearly resemble a regular drama.

If Individuality be large, physical substances may be re-

membered vividly by it, their relations in space by Locality and Order, and their causes and effects by Causality; but if Eventuality be deficient, extreme difficulty will be experienced in bringing together these items of information, and presenting them in the form of a natural narrative.

A person in whom the combination now described exists, and in whom Concentrativeness is large, will feel strongly the desire of communicating the quality of continuity to his narrative; and on important occasions he will produce it by laboriously writing down all the elementary ideas of his subject, by transposing them, by filling up, and by striking out parts, until the whole shall cohere with neatness and consistency. Such a combination will fit its possessor for studying physical more successfully than moral science; because action is the primary element of the latter.

If Concentrativeness and Eventuality be both deficient, the literary or philosophical productions of the individual will be marked by omissions of important intermediate ideas; in oral discourses he will combine description with inference, without taking sufficient notice of modes of action; he will often wander from his subject; in short, he may display great knowledge of objects which exist, with profound reflection on their relations, and yet be unsuccessful in conveying to the minds of his readers or auditors philosophical convictions, similar to those which exist in his own mind. This will be owing chiefly to deficiency in the power of representing, by Eventuality, modes of action, and of giving, by Concentrativeness, continuity to the thread of his discourses.

Individuality, Eventuality, and Concentrativeness, are indispensable qualities to a successful teacher. I have never seen a person capable of interesting children and exciting their intellects, who was deficient in both the first and the second organs. The manner of a teacher thus deficient in communicating knowledge, is vague, abstract, and dry, and altogether unsuited to the mental condition of the young. These three organs large, combined with large Philoprogenitiveness, Benevolence, and Conscientiousness, and an active

temperament, constitute the leading mental elements of a good teacher.¹ Sir George Mackenzie suggests that he should also be gifted with a mirthful disposition.²

When both Individuality and Eventuality are large, the individual possesses two important qualities for general business. They confer that readiness of observation and talent for detail, which are essential in the management of affairs. The lawyer so endowed is able readily to apprehend the details of his cases: to recollect the principles of law, the dicta of legal authors, and the decisions of courts, as matters of fact: and to reproduce the whole in a connected narrative before a judge or jury. His power of applying principles to new cases, depends on the reflecting faculties: but although these be powerful, yet, if Individuality and Eventuality be deficient, he may feel great difficulty in preparation for a trial, and in the reproduction of his ideas. In point of fact, the most eminent practical lawyers, particularly in England, are distinguished by a great development of these organs. They are equally necessary to the public speaker, to give him a command over the *materiel* or details of his subject, and to enable him to set it forth clearly and naturally to his audience. I have observed them large also in eminent physicians; for, in the profession of medicine, prompt and accurate observation is one important element in success.

Both of these organs are large in authors who acutely observe objects that exist, and also life, manners, and occurrences:—as Le Sage, Defoe, and Sir Walter Scott.³

¹ See *The Phrenological Journal*, vol. v. p. 620.

² *General Observations on the Principles of Education: for the use of Mechanics' Institutions.* By Sir G. S. Mackenzie, Bart. 1836, p. 65.

³ Sir Walter Scott was deficient in Concentrativeness, and the absence of the mental quality is very conspicuous in his writings. The first volume of each of his novels is in general expended before he enters fairly into his subject. With Concentrativeness large, he would have dashed into it at once, and proceeded to pour forth a condensed stream of narrative and description to the close.

They are essential to the composition of such works as *Robinson Crusoe* and *Gulliver's Travels*, in which a strong impression of reality is produced by a minute description of particular objects and actions. In the skull of Swift, the organs appear very large.¹

When both organs are small, and the organs of reflection are large, the individual will retain only general ideas, and will experience great difficulty in becoming learned; he may see, hear, or read many facts, but they will make only a faint impression, and soon escape from his mind; he will feel great difficulty in commanding, without previous preparation, even the knowledge which he possesses.

These faculties desire only to know existence and phenomena, and do not reason or trace relations. A person in whom they are strong, and in whom the reasoning powers are deficient, gains his knowledge by questioning and observation. If we tell him two facts, which clearly imply a third, he will not naturally endeavour to find it out by his own suggestion, but will instantly put another question. The tendency of these faculties also, is to recollect facts according as they occur, and not according to any philosophical relations between them. *Mrs Quickly's speech to Falstaff* is a beautiful illustration of this kind of understanding. She is reminding him of his promise of marriage, and says—
 “Thou didst swear to me *on a parcel-gilt goblet, sitting in my Dolphin-chamber, at the round table, by a sea coal fire, on Wednesday in Whitsunweek, when the Prince broke thy head* for likening his father to a singing man of Windsor; thou didst swear to me *then, as I was washing thy wound*, to marry me, and make me my lady thy wife. Canst thou deny it? Did not *goodwife Keech, the butcher's wife, come in then, and call me gossip Quickly? coming in to borrow a mess of vine-*

¹ This skull, which I examined in Dublin, presents unequivocal marks of disease, and cannot therefore be cited as evidence, except in so far as supported by authentic portraits painted before his insanity commenced. In all of these the organs of Individuality and Eventuality are represented large. See *Phren. Journ.* vol. ix. p. 466, 603.

gar ; telling us, *she had a good dish of prawns* ; whereby thou didst desire to eat some ; whereby I told thee, *they were ill for a green wound* ; and didst not thou, *when she was gone down stairs, desire me to be no more so familiarity with such poor people*, saying, that ere long they should call me *Madam* ? And didst thou *not kiss me, and bid me fetch thee thirty shillings* ? I put thee now to thy book oath ; deny it if thou canst."¹ Here is a surprising variety of trivial circumstances connected by no link but that of the order of their occurrence. Yet every one must perceive, that they have an effect in producing the impression of reality on the mind. We feel it impossible to doubt the promise, which is substantiated by so particular a detail of facts, every one of which becomes, as it were, a witness to its truth.

Dr Spurzheim, in treating of Eventuality, says: "It seems to me that this faculty recognises the activity of every other, whether external or internal, and acts in its turn upon all of them. It desires to know every thing by experience, and consequently excites all the other organs to activity ; it would hear, see, smell, taste, and touch ; is fond of general instruction, and inclines to the pursuit of practical knowledge, and is often styled *good sense* in our proceedings. It is essential to editors, secretaries, historians, and teachers. By knowing the functions of the other powers, this faculty and Individuality contribute essentially to the unity of consciousness, and to the recognition of the entity *myself* in philosophy. Eventuality seems to perceive the impressions which are the immediate functions of the external senses, to change these into notions, conceptions, or ideas, and to be essential to attention in general. Its sphere of activity is very great, and expressed by the *verbs* in their infinitive mood. Every philosophic system has taken account of some operations of this faculty."²

The relation of the faculty of Time to Eventuality is stated on p. 74-5, *voce* Locality.

¹ Second Part of *King Henry IV.* Act ii. scene 2.

² *Phrenology*, last (American) edition, p. 340.

Dr Gall regarded the part of the brain comprising Individuality and Eventuality, as the organ of "the sense of things" in man, and of educability or perfectibility in the lower animals. While he admits that every faculty is susceptible of improvement by education, he forms a scale of the heads of animals, from the crocodile and frog up to man, with the view of proving, that the more this part of the brain is developed in each species, the higher are its natural susceptibilities of being tamed and taught. Camper and Lavater, he adds, had made similar observations; but they did not distinguish special faculties and organs. Dr Spurzheim acknowledges the correctness of the facts stated by Dr Gall, that tame animals have fuller foreheads than wild ones, and that animals are generally tameable in proportion to the development of their foreheads; but he conceives that Dr Gall attributes to a single faculty, manifestations which depend on the intellect generally. Eventuality does not fill the whole forehead; and the other organs situated there contribute to the effects observed by Dr Gall. The observation of the latter, therefore, is deficient in precision, rather than in truth. Dr Gall, however, remarks, that this organ does not fill the whole forehead; and he distinguishes between the capacity of improvement which belongs to every faculty, and that general capacity for being educated which he ascribes to this organ alone. The organ, he says, is confined to the middle line of the forehead, on the two sides of the *falx*, and the power of educability which it confers extends to all things not comprehended within the spheres of the other organs. Dr Gall regarded the organ of Benevolence, in the lower animals, as the source of gentleness of disposition, and described it as situated in them in the middle of the *upper* part of the forehead. The organ of Educability, which is distinct, he says, is situated in the middle of the *lower* part of the forehead.

The older metaphysicians do not treat of any faculty distinctly analogous to Eventuality. But Dr Thomas Brown¹

¹ *Lectures*, vol. ii. p. 192.

admits a power of the mind, under the name of "Simple Suggestion," which corresponds very closely with it; and he reduces Conception and Memory of the metaphysicians to this principle of Simple Suggestion.

The organ is established.

31.—TIME.

THE power of conceiving time, and of remembering the relation in which circumstances stand to each other in chronology, and also the power of observing time in performing music, are very different in different individuals. Many observations have been made on this organ; and it is now regarded by most phrenologists as ascertained. The special faculty seems to be the power of judging of time, and of intervals of duration in general. By giving the perception of measured cadence, it appears to me one source of pleasure in dancing. It is essential to music and versification.

Mr Simpson, in an excellent essay on this faculty, published in *The Phrenological Journal*,¹ says: "We have found the organ largely developed in those who shew an intuitive knowledge of the lapse of minutes and hours, so as to name the time of the day, without having recourse to the clock; and also in those who perceive those minuter divisions, and their harmonious relations, which constitute rhythm, and who, when they apply the tact to music, are called good timists,—a distinct power from that of the mere melodist, and often wanting in him; while it is matter of the commonest observation, on the other hand, that this sensibility to rhythm, called time, is marked in those who have a very moderate perception of melody. Such persons are invariably accurate dancers, observing delicately the time, though indifferent to the melody of the violin. We have made many observations, both in persons who have both Time and Tune

¹ Vol. ii. p. 134.

large, and in those who have only one of them in large endowment, and we have never found the manifestations fail. Very lately we were struck with the uncommon prominence of the organ of Time in a whole family of young people, and enquired whether or not they danced with accuracy, and loved dancing? We were answered, that they did both in a remarkable degree; and, as we lived near them for some weeks, we observed that dancing was a constant and favourite pastime of theirs, even out of doors. Their dancing-master informed us, that the accuracy of their time exceeded that of any pupils he had ever taught. There was thus evident in these young persons, an intense pleasure in accurate rhythmical movements."

The fact that many deaf and dumb persons dance with precision, and much pleasure, is thus accounted for by Mr Simpson. "That Time," says he, "may be marked with the utmost precision to the eye, is a fact familiar to every one who has seen a regiment of soldiers go through the manual and platoon exercise, without a single word of command, by obeying the movements of the fogle-man, who gives the time to the eye; and who that has seen this done by a practised corps, is ignorant that there is great pleasure in witnessing the exquisitely timed movements of the exercise? Now, suppose a dancer, unaided by music, were to keep his eye on any person or object which was marking dancing-time to his sight, it cannot be doubted that he could dance to it. A deaf person could perform the manual exercise from the time given by the fogle-man; and just as easily could a deaf person dance with his eye upon the violin-bow, or the player's arm, or on the movement of the drumsticks.

"It is unnecessary to go farther, and shew that the sense of touch may be the channel through which the organ of Time is excited, as well as the sense of hearing and sight. No one will dispute that a soldier could perform the manual exercise to a succession of taps on the shoulder; and to time, in the same way given, might a person dance.

"What we have said is confirmed by fact. It is well

known that the deaf and dumb do dance, taking the time by the eye, either from the violin-player's arm, or at second hand, but instantaneously, from the other dancers. We are acquainted with a young lady and gentleman in England, both of rank, who are deaf and dumb, and who, in addition to many other accomplishments, dance with the greatest grace and precision."

Individuals are occasionally met with, who estimate the lapse of time so accurately that they are able to tell the hour without having recourse to a time-piece. A case of this sort was reported by M. Chavannes to the Society of Natural Sciences of Switzerland. The individual, whose name is Jean Daniel Chevalley, was visited by M. Chavannes, whose account of the case is recorded in the *Bibliothèque Universelle*, vol. xxvii. An abridgement of it, in the English *Journal of the Arts and Sciences*, is copied into a valuable paper on the faculty of Time in *The Phrenological Journal*, vol. iv. p. 517. The following is a portion of this curious case:—"Being on board the steam-boat on the lake of Geneva (July 14. 1823), he soon attracted attention by his remarks, that so many minutes and seconds had passed since they had left Geneva, or passed other places; and, after a while, he engaged to indicate to the crowd about him the passing of a quarter of an hour, or as many minutes and seconds as any one chose, and that during a conversation the most diversified with those standing by; and farther to indicate by the voice the moment when the hand passed over the quarter-minutes, or half minutes, or any other subdivision previously stipulated, during the whole course of the experiment. This he did without mistake, notwithstanding the exertions of those around him to distract his attention, and clapped his hands at the conclusion of the time fixed.

"M. Chavannes then reverts to his own observations. The man said, 'I have acquired by imitation, labour, and patience, an internal movement, which neither thought, nor labour, nor anything can stop; it is similar to that of a pendulum, which, at each motion of going and returning, gives me the

space of three seconds, so that twenty of them make a minute, and these I add to others continually.' The calculations by which he obtained subdivisions of the second were not clearly understood by M. Chavannes, but the man offered freely to give a proof of his power. On trying him for a number of minutes, he shook his head at the time appointed, altered his voice at the quarter, half, and three quarter minutes, and arrived accurately at the end of the period named. He seemed to assist himself in a slight degree by an application of mnemonics, and sometimes in idea applied religious names to his minutes up to the fifth, when he recommenced: this he carried through the hour, and then commenced again. On being told that the country people said he made use of his pulse as an indicator, he laughed at the notion, and said it was far too irregular for any such purpose.

"He admitted that his internal movement was not so sure and constant during the night; nevertheless 'it is easy to comprehend,' he said, 'that when I have not been too much fatigued in the evening, and my sleep is soft, if, after having gently awakened me, I shall reflect a second or two, my answer will not be ten minutes in error. The approach of day renews the movement, if it has been stopped, or rectifies it, if it has been deranged, for the rest of the day.' When asked how he could renew the movement when it had ceased, he said, 'Sir, I am only a poor man; it is not a gift of Heaven; I obtained this faculty as the result of labours and calculations too long to be described; the experiment has been made at night many times, and I will make it for you when you please.' M. Chavannes had not, however, the opportunity of making this experiment, but he felt quite convinced of the man's powers. He states that the man is deaf, and cannot hear at present the sound of his clock or watch; and farther, that neither of them vibrates twenty times in a minute, which is always the number indicated by the motions of Chevalley when he wishes to illustrate his internal movement: and he is convinced, according to what he has seen,

that this man *possesses a kind of internal movement, which indicates minutes and seconds with the utmost exactness.*"

An illiterate Highlander, who was long in the service of Sir G. S. Mackenzie as a ploughman, could tell the hour of the day with great exactness, and also the time of high water, although he resided seven miles from the sea. Sir George had not become acquainted with Phrenology at the period of this man's death.

Dr Hoppe of Copenhagen mentions an interesting case of a morbid affection of the organ of Time, which fell under his observation in 1827. "Last October," says he, "I was called to visit Mrs G., a nervous but very intelligent woman of my acquaintance, labouring under a moderate degree of *delirium puerperale*. When spoken to, she was quite sensible, and gave reasonable answers. She stated, *without being particularly questioned*, that, though she was perfectly conscious of herself, and of everything around her, she had no conception of time; so that sometimes an exceedingly long period, and at other times but a few moments, seemed to her to have elapsed since she fell into her present state. She experienced a like perturbation of thought when telling me what had happened since the preceding day. She expressed great astonishment at this state of her mind, of which she was perfectly aware. She knew persons and things, and reasoned and spoke as well as ever. It was only on a few occasions, when left to herself, that she fell into slight delirium. I did not at first think phrenologically about this case; but when she, *unquestioned*, complained of pain and a 'strong sense of burning in a line (these were her words) across the forehead,' I was immediately struck, and asked her to point out the place with her finger. 'There,' said she, and laid the point of her finger *most exactly* upon one of the organs of Time, drawing it across the forehead to the other organ of Time. I asked if she felt pain in any other part of the head. 'No,' replied she, 'only in this line.'"¹

The following case is given by Dr Caldwell:—"A well-

¹ *Phrenological Journal*, vol. v. p. 458; and vi. 161.

known citizen of Philadelphia, recently dead, was celebrated for his perception and recollection of the lapse of time. Respecting the date of events he was a perfect chronicle.

"In bets with gentlemen of his acquaintance, as to the day of the week, month, and year on which they had been married, he won many suppers, together with dozens and bottles of wine. Although but a child during our revolutionary war, and no reader of history, he could cite, with promptness and accuracy, the precise date of every distinguished event of that memorable conflict. What was still more extraordinary, he often won from ladies pairs of gloves and other fancy articles, in wagers respecting the day and hour of the birth of their children.

"He was an elegant dancer, walked the street with a measured military step, although he had never borne arms, and appeared as if beating time in all his movements. Nor was he at all remarkable for any other intellectual faculty."¹ It appears to me that Eventuality, in addition to Time, is necessary for such a memory of events as is here described. In the case of a similar talent described on p. 95, the organs of both Time and Eventuality were large. For dancing and walking elegantly, the organ of Weight, in addition to that of Time, is necessary.

The origin of the notion of time has greatly puzzled the metaphysicians. Lord Kames says, that we measure it by the number of ideas which pass in the mind ; but experience contradicts this supposition, for time never appears so short as when ideas are most numerous, and pass most rapidly through the mind. The opinion, that it depends on a separate faculty and organ, on the other hand, is in harmony with this fact ; for, as the organ of Time may remain inactive while the others are vividly excited, it follows, that our perceptions of duration will, on such occasions, be indistinct, and time will, in consequence, appear brief.

The talent of using tenses properly in composition appears to be dependent on this organ.

¹ *Elements of Phrenology*, p. 126.

The lower animals seem to be endowed with the power of perceiving and appreciating intervals of time. "Mr Southey, in his *Omniana*, relates two instances of dogs, who had acquired such a knowledge of time, as enabled them to count the days of the week. He says: 'My grandfather had one which trudged two miles *every Saturday* to cater for himself in the shambles. I know another more extraordinary and well-authenticated example. A dog which had belonged to an Irishman, and was sold by him in England, would never touch a morsel of food *upon Friday*.' The same faculty of recollecting intervals of time exists, though in a more limited extent, in the horse. We know a horse," says the writer from whom I quote, "(and have witnessed the circumstance), which, being accustomed to be employed once a-week on a journey with the newsman of a provincial paper, always stopped at the houses of the several customers, although they were sixty or seventy in number. But further, there were two persons on the route who took one paper between them, and each claimed the privilege of having it first on the alternate Sunday. The horse soon became accustomed to this regulation, and, although the parties lived two miles distant, he stopped once a fortnight at the door of the half-customer at Thorpe, and once a fortnight at the door of the other half-customer at Chertsey; and never did he forget this arrangement, which lasted several years, or stop unnecessarily, when he once thoroughly understood the rule."¹ Dr Vimont thinks it impossible to doubt that the lower animals possess the faculty of appreciating time; and he relates several facts in support of this opinion.²

32.—TUNE.

DR GALL mentions, that a girl named Bianchi, of about five years of age, was presented to him, and he was asked

¹ *Library of Entertaining Knowledge*, vol. i. p. 55.—Another case of a dog which obviously distinguished the days of the week, will be found in the *Phrenological Journal*, vol. viii. p. 76.

² *Traité de Phrénologie*, tome ii. p. 330.

for what talent she was most distinguished. He discovered in her no indication of an extraordinary memory ; and the idea had not then occurred to him, that the talent for music could be recognised by the conformation of the head. Indeed, he had not at that time ascertained the different kinds of memory ; but his friends, nevertheless, maintained, that the girl had an extraordinary memory for music, and, as he had not discovered that talent in her, they inferred that the doctrine which he taught of external signs for different kinds of memory was unfounded. This child repeated whatever she heard sung or played on the piano, and recollected whole concerts if she had heard them only twice. Dr Gall asked if she learned by heart with equal facility, but he was told that she possessed this astonishing memory in music alone. He concluded that a well-marked difference exists between memory for music, and the other kinds of memory with which he was then acquainted, and that every kind has its distinct organ. He prosecuted his observations with fresh ardour, and at last discovered that the talent for music is connected with the organ now under consideration. He calls it, "*Le sens des rapports des tons*," an expression, says he, "*qui rattache la manière dont l'intellect du musicien met en œuvre les rapports de tons à la manière d'agir des sens en général.*"

The organ of Tune bears the same relation to the ears which the organ of colouring does to the eyes. The auditory apparatus receives the impressions of sounds, and is agreeably or disagreeably affected by them ; but the ear has no recollection of tones, nor does it judge of their relations : it does not perceive the harmonies of sound ; and sounds as well as colours may be separately pleasing, though disagreeable in combination. Le Bouvyer Desmortiers, in his *Memoir, or Considerations on the Deaf and Dumb*, remarks, that "his deaf and dumb pupil, Maurice, sung very willingly, and with all the natural expression of the most delicious enjoyment;" and adds, "Assuredly these effects take their rise, and are accomplished, in the brain, without the participation

of hearing.”¹ A friend, in a letter written from India, formerly quoted, says—“Melody is the pleasure arising from successions of simple sounds suited to each other. Harmony is that arising from *combined* sounds, or from several striking the ear simultaneously, as in a band playing different parts. The former requires much less of the organ than the latter; and hence the Scotch, with no great Tune, are melodists, but nothing as musicians.”

The generic terms, Pitch—Duration—Force or Loudness—and Quality, express the varieties of sound. “Pitch of musical sound depends on the number of impulses in a given time. Duration depends on the continuance of the same number in equal successive times; Loudness or Force on the extent of excursion of the vibration of the sounding body; and Quality on the molecular structure of the sounding body.” “Melody may be described as a series of sounds, each of a certain Pitch, Duration, Loudness, and Quality, succeeding each other with a certain velocity.” “The *quality* and the *degrees of loudness* of sounds are perceived although the organ of Tune be deficiently developed. Mr Cull says, that the function of this organ is to perceive the *pitch* of sound.”² Duration is judged of by the organ of Time. Mr Simpson considers “Sound” to be the primitive function of the organ, and the power of perceiving the qualities of sounds now enumerated to depend on the degree in which the organ is possessed. He regards all sounds as musical; and says, that it is the *quality* or *timbre* of a sound, and not its pitch or adaptation to a musical scale, which renders it disagreeable.³ Another writer in *The Phrenological Journal*, vol. xi. p. 36, remarks, “That the *duration* of sound is perceived

¹ Gall’s Petition and Remonstrance, appended to translation of “Gall on the Cerebellum,” by George Combe, p. 321.

² These are remarks of Mr Richard Cull, communicated to the *Phrenological Journal*, in vol. xi. p. 33; also in vol. xii. p. 135, and 249. They display great knowledge and talent.

³ See *Phrenological Journal*, vol. x. p. 436; and vol. xi. p. 267.

by the organ of *Time* ; 2d, That persons insensible to melody can estimate the relative distance of sounds, which is effected by perceiving and calculating upon their *loudness*. 3dly, They can predicate the nature of the body producing the sound, which implies perception of the *quality* of the sound. Thus the quality and the degrees of loudness of sounds are perceived, although the organ of Melody be deficiently developed. The inquiry is now narrow, for the only remaining property is the *Pitch* of sound. *And this is the property which is not perceived.* There may be discrimination between the sound and its fifth or sixth, but there is no power to discriminate the several degrees of the scale or gamut ; and hence none for the perception of melody. It is by perceiving the pitch of the several sounds of the octave, in relation to the key-note of that octave, that we are enabled to perceive the relationships of pitch of the several successive sounds that form a melody." See these discussions continued in *Phren. Journ.*, vol. xii. p. 135, 249, 305 ; xiii. p. 193 ; xiv. p. 113.

A correspondent of *The Phrenological Journal* mentions, that "he has a most singular tendency to compare one thing with another : for instance, if he hears the piano played, every sound seems to resemble a particular colour ; and so uniform is this, that he thinks he could almost make a gamut of colours. Some notes are yellow, others green, others blue, and so forth." In him Comparison is large, but neither Colouring nor Tune is much developed.¹

A great development of the organ enlarges the lateral parts of the forehead ; but its appearance varies according to the direction and form of the convolutions. Dr Spurzheim observes, that, in Glück, and others, this organ had a pyramidal form ; in Mozart, Viotti, Zumsteg, Dussek, Crescentini, and others, the external and lateral portions of the forehead are enlarged, but rounded. Great practice is necessary to be able to observe this organ successfully ; and beginners should

¹ Vol. viii. p. 216.

place together one person possessing a genius for music, and another who can scarcely distinguish between any two notes, and mark the difference of their heads. The superior development of the former will be perceptible at a glance.

Mr Cull suggests the following mode of studying the size of this organ :—1. Examine the state of integument over the organ. 2. Examine the organ by a front view of the face ; then, 3. By a profile view. 4. Then examine the angle of the forehead, by looking from the corner of the eye-brow upwards, and finally looking downwards on the angle. In examining this organ, it is well to move the head so as to obtain various effects of light and shadow on the angle of the forehead.

The organ is large in Haydn and Macvicar ; small in Sloane, and remarkably deficient in Ann Ormerod. This girl was admitted, at twelve years of age, into the asylum for the blind at Liverpool, and during two years, means were unsparingly employed to cultivate and improve any musical talent which she might possess ; but with such decided want of success, that her teachers, Mr Handford and Mr Platt, men of unceasing perseverance, and constantly accustomed to the most stubborn perverseness, were at last under the necessity of abandoning the attempt altogether.”¹ The figures represent her head, the organ of Tune being thrown into the outline on her left side,—and the head of Handel, the organ being brought into line on his right side.

HANDEL.



ANN ORMEROD.



¹ *Phren. Journ.* vol. ii. p. 542.

Mr Cull reports the following case in the *Phrenological Journal*, vol. xiv. p. 330.

"This is the cast of the forehead of a lady of very defective musical perception. The organ of Constructiveness is very large, that of music is very small. Miss L. H is about 30 years of age. She cannot distinguish one simple melody from another. She declares all music to be alike. In testing her perception, I with one hand played "*God save the Queen*" on the pianoforte, and, requesting her attention, asked her what it was, but she was unable to recognise it as anything she before had heard. The object of playing with only one hand, was to preserve the melody as distinct as possible. "*Robin Adair*" was next played, still with one hand, and she thought it a repetition of "*God save the Queen*." The latter melody was again played, and immediately followed by the other national melody "*Rule Britannia*," but she could perceive no difference between them. "*God save the Queen*" was again tried, followed by "*Maggie Lauder*," but she perceived no difference between them. Many experiments were tried on several occasions with similar results. She has been to the opera and likes theatricals, but the music of all operas is alike to her—she can perceive no difference. Handel, Mozart, Beethoven, and Rossini, have lived in vain for her. I tested her in the scales, and explained the construction of the octave to her; then, after accustoming her ear to the succession of sounds of the octave, I purposely threw the semitones out of their places, but she did not perceive it.

"She accurately perceives the distinctions of loudness of sound, as tested on the piano, and in everyday life by correctly estimating the distance of common noises. She accurately perceives the distinctions of quality of sound, as tested in distinguishing one musical instrument's sound from another, and in referring ordinary noises to their true causes. She accurately perceives the distinctions of duration of sound, and dances in good time. Thus she perceives all the distinctions of sound except those of pitch."

The faculty gives the perception of melody; but this is

only one ingredient in a genius for music. Time is requisite to give a just perception of intervals, Ideality to communicate elevation and refinement, and Secretiveness and Imitation to produce expression ; while Constructiveness, Form, Weight, and Individuality, are necessary to supply mechanical expertness :—qualities all indispensable to a successful performer. Even the largest organ of Tune will not enable its possessor to play successfully on the harp, if Weight be deficient ; the capacity of communicating to the string the precise vibratory impulse necessary to produce each particular degree of loudness will then be wanting.

Dr Gall mentions that he had examined the heads of the most celebrated musical performers and singers, such as Rosini, Catalani, &c. and found the organ uniformly large ; and that the portraits and busts of Hadyn, Glück, Mozart, &c. also shew it largely developed. I have examined the heads of Madame Catalani, of Mons. Thalberg, and many eminent private musicians, and found the organ confirmed in every instance. Dr Gall remarks farther, that a great development is not to be expected in every ordinary player on a musical instrument. With a moderate endowment, the fingers may be trained to expertness ; but when the soul feels the inspiration of harmonious sounds, and the countenance expresses that voluptuous rapture which thrills through the frame of the real musician, a large organ will never be wanting.

“ Il me paraît, continues Dr Gall, “ que les hommes qui sont capables de déduire les lois de la composition des lois des vibrations sonores et des rapports des tons, et d'établir ainsi les principes les plus généraux de la musique, doivent être doués en même temps d'une *organe des nombres* très développé ; car l'exercice de ce degré du talent musical exige, sans contredit, beaucoup de calcul ; aussi la circonvolution inférieure de l'organe musicale, la plus large de toutes, se continue immédiatement dans l'organe des nombres. Ceci explique pourquoi on peut être excellent musicien, et n'avoir

pas le talent de la composition : être grand compositeur sans être en même temps grand musicien."¹

The heads of Italians and Germans in general are broader and fuller at the situation of this organ than those of Negroes, Spaniards, Frenchmen, and Englishmen, in general : and musical talent is more common in the former than the latter. The Esquimaux are very deficient both in the talent and in the organ.²

Mr Scott has published, in *The Phrenological Journal*,³ two admirable essays "on Music, and the different faculties which concur in producing it," which will be found highly deserving of attention. "It seems to me," says he, "although I do not pretend to have made observations sufficiently accurate and numerous to prove the fact, that there is a correspondence in all cases between the voices of men and women, and their cerebral development.

"In the first place, it is a general rule, that the heads of women are comparatively smaller than those of men, and that their voices are, in a corresponding degree, smaller and shriller than the male voice.

"Boys under puberty, who have smaller heads than full grown men, have voices small, shrill, and soft, like a woman's.

"The voices of children of both sexes, but particularly girls, are shriller than even the adult female voice.

"As boys advance from puberty to manhood, and just at the time when the head is receiving the largest accessions, the voice is changed from the small shrill pipe of the boy to the grave tones of the man.

"In men who have small or moderately-sized heads, particularly if the lower propensities are moderately developed, the voice approaches to the shrill pitch and softness of a woman's.

"In women who have large heads, particularly if the lower propensities are fully developed, the voice is generally

¹ *Sur les Fonctions du Cerveau*, tome v. p. 119.

² *Phren. Journ.* vol. viii. p. 437.

³ Vol. ii. pp. 120 and 556.

grave, and approaches in its tones to a man's. I have been informed, that it has been observed of women who are subject to *nymphomania*, that, when under the influence of a paroxysm, their voices are harsh, low, and rough, like those of men. This fact, if sufficiently established, would go far to prove, that low and rough notes are the natural language of the lower propensities.

"It is undoubted, he continues, that the quality of tone, as well as the pitch, depend considerably on the nature of the development. In women who possess Combativeness and Destructiveness well developed, the voice, though shrill, is sharp, and the tones pierce the ear like a sword. In women who are given to scolding, this sharp piercing quality of voice will invariably be noticed; and it forms one of the most unpleasant circumstances attending it. If the lady would utter the same words in a moderate tone, the nuisance would not be nearly so great. In like manner, in men who have large Destructiveness, if the head is otherwise large and well-balanced, the voice, though grave, will be clear, and have a peculiar edge and sharpness, which Destructiveness alone seems to give.

"When the head is in general large, but Destructiveness deficient, the voice will probably be grave and full, but soft, and will want the sharp ringing quality which Destructiveness confers. This is a voice, from its rarity, much in request among singers, and is called a *veiled voice* (*voce velata*). Madame Marconi, who sung at the first Edinburgh Festival, had a voice of this description. She was said to have been remarkable for good-nature.

"In those in whom intellect predominates, the voice has a calm and composed, but not a touching expression. When Benevolence, and the kindly and social affections are large, and when Tune, Imitation, and Ideality, are at the same time large, the voice has a degree of betwitching softness, as may be observed in the case of Miss Stephens or Miss Tree. But there occur in private life many instances to the same effect. When Benevolence and the higher sentiments are

both united in full proportion, the voice is felt to be peculiarly delightful and harmonious. In men there is generally too much of the lower propensities to admit of this in its highest degree; indeed, these seem so essential to a manly character, that in them it would not be desirable. But we have met with women whose every tone is music, and whose voices, even in ordinary discourse, have about them a delightfulness which is quite irresistible, and which makes its way directly to the heart. This softness and sweetness of voice is remarked as a great point of female excellence by *King Lear*, where the old distressed monarch is enumerating the excellencies of his favourite *Cordelia*,—

“ — Her voice was ever soft,

“ Gentle and low,—an excellent thing in woman.”¹

These observations of Mr Scott are very interesting, and numerous cases have been observed in accordance with them; but they are not absolutely correct, because I have met with decided exceptions. One gentleman, in particular, has a moderate-sized head, small cerebellum, and the other organs of the propensities below an average, whose voice is nevertheless a deep rich bass. It is certain that the development of brain has some, and even an important, influence on the quality of the voice: but so have the lungs and larynx; and it is still unascertained how much of the actual effect is attributable to each.²

When an average development of Tune is combined with large reflective organs, the superior objects with which these are conversant generally attract the mind, and music is little cultivated. When, on the other hand, these are small, and Ideality, Hope, Benevolence, Veneration, and Wonder, which Tune is particularly calculated to gratify, are large, the tendency to practise music is much stronger. Hence, with the

¹ *The Phrenological Journal*, vol. ii. p. 575.

² I have observed that large lungs, which imply a correspondingly large heart and bloodvessels, are highly favourable to intensity of action in the brain. The blood is then well oxygenated, and it is sent to the brain copiously, and with great energy.

same absolute development of this organ, very different practical results may ensue; but this is in exact accordance with the principles of the science: for it is the *predominance* of particular organs in an individual that decides the bias of his mind; the largest organs always tending most powerfully to seek gratification.

Tune is occasionally found strong in idiots, and, in some insane patients, its activity remains unimpaired amidst an extensive derangement of the other faculties. I have seen two idiots who manifested it in a considerable degree.

The following case is reported by Dr Andrew Combe, and occurred in his own practice.

“ A young lady of high musical and intellectual powers, and of a very active mind, and who has for some months past been subject to frequent attacks of hysteria in all its ever-changing forms, and who suffers almost constantly in a greater or less degree from headach, complained on Saturday, 22d April 1826, of feeling acute pain at the external angle of the forehead, precisely in the situation of the organs of Tune, which are largely developed, and upon which, in describing the seat of the pain, she placed most accurately the points of the fingers. Next day the same complaint of pain in that region was made; and about two hours after I saw her, she was suddenly seized with a spasmodic or rather convulsive affection of the larynx, glottis, and adjoining parts, in consequence of which, a quick, short, and somewhat musical sound, was regularly emitted, and continued with great rapidity, as if the breathing had been very hurried. On examination externally, the os hyoides at the root of the tongue and the thyroid cartilages, were seen in constant motion, and in the act of alternately approximating and receding from each other. The will was so far powerful in controlling this motion, that the young lady was able to utter a few short sentences at a time without much difficulty; interrupted, however, by two or three movements. After this singular state had continued for about two hours, she herself remarked, that it was become rather too musical, and

wished that it would cease, which it did at the end of another half-hour, from accidental pressure with the finger in pointing out the motion to another person ; she was then as well as usual, only somewhat fatigued.

“ On Monday, 24th April, she still complained of pain in the situation of the organ of Tune ; and stated, that she had been dreaming a great deal of *hearing the finest music* ; that she felt quite excited by it, and could not even now get the impression out of her head. The day passed on, however, and nothing remarkable occurred.

“ On Tuesday I found that I had been rather anxiously expected. During the night the young lady had been tormented with the recurrence of the musical dreams, during which she heard and performed the most beautiful airs, with a distinctness which surpassed those of the preceding night. These dreams continued for some hours, and left such an impression, that on awaking she thought she could almost note down one piece of composition which had particularly pleased her. But what is very remarkable, the excessive excitement of the faculty of Tune had now reached a height that could not be controlled ; the patient felt, not a desire only, but a *strong and irresistible passion or craving* for music, which it was painful beyond endurance to repress. She insisted on getting up, and being allowed to play and sing ; but that being for many reasons unadvisable, she then begged to have a friend sent for to play to her, as the only means of relief from a very painful state ; but shortly after, the craving of the faculty became so intolerable, that she got hold of a guitar, lay down upon a sofa, and fairly gave way to the torrent, and, with a volume, clearness, and strength of voice, and a facility of execution, which would have astonished any one who had seen her two days before, she sung in accompaniment till her musical faculty became spent and exhausted. During this time the pain at the angles of the forehead was still felt, and was attended with a sense of fulness and uneasiness all over the coronal and anterior parts of the forehead. Regarding all these phenomena as arising from over-excitement chiefly of the

organs of Tune, I directed the continued local application of cold, and such other measures as tended to allay the increased action, and soon after the young lady regained her ordinary state, and has not since had any return of these extraordinary symptoms.

“ In this case, the order in which the phenomena occurred, put *leading* queries on my part, or exaggeration or deception on the part of the patient, alike out of the question. The pain in the organ was distinctly and repeatedly complained of for many hours (at least 36) before the first night of dreaming, and for no less than *three days* before the irresistible waking inspiration was felt. When my attention was first drawn to the existence of the pain, I imagined it to arise from an affection of the membranes covering that part of the brain, and had no conception that it was to terminate in any such musical exhibition as afterwards took place; and, in fact, although the young lady had mentioned her previous melodious dreams, my surprise was quite equal to, although, thanks to Phrenology, my alarm was not so great as, that of her relations, when, on entering the house on the morning of Tuesday the 25th, I heard the sound of the guitar mingling with the full and harmonious swell of her own voice, such as it might shew itself when in the enjoyment of the highest health and vigour.”

When visiting the Lunatic Asylum at Worcester in the United States on 28th December 1839, I saw in one of the cells a musician, who tore every thing to pieces, and was excessively dirty. He was seated on the floor (composed of mica slate heated by fire, applied below), clothed in a very strong and thick cotton vestment, which descended to his ankles. His organs of Time and Tune were large, and remained sound amidst the wreck of nearly all his other faculties. I heard him, while thus seated, play several tunes on the flute, with correctness and expression. See farther particulars of this case in my “Notes on America,” vol. iii. p. 214.

It is a prevalent error in education, to persevere in attempts to cultivate musical talent where none is naturally possessed. Dr Neil Arnott speaks feelingly of the lamentable consequences of the ignorant prejudice "that in the present day condemns many young women, possessed of every species of loveliness and talent except that of *note-distinguishing*, to waste years of precious time in an attempt to acquire this talent in spite of nature; and yet, when they have succeeded as far as they can, they have only the merit of being machines, with performance as little pleasing to true judges as would be the attempt of a foreigner, who knew only the alphabet of a language, to recite pieces of expressive poetry in that language. Such persons, when liberty comes to them with age or marriage, generally abandon the offensive occupation; but tyrant fashion will force their daughters to run the same course."¹

Dr Spurzheim mentions, that the heads and skulls of birds which sing, and of those which do not sing, and the heads of the different individuals of the same kind which have a greater or less disposition to sing, present a conspicuous difference at the place of this organ. The heads of males, for instance, and those of females, of the same kind of singing birds, are easily distinguished by their different development. Dr Vimont protests against Gall's practice of comparing the skulls of animals of different species at the situation of this organ; "such a practice," says he, "is *extrêmement vicieuse*; for there are many varieties of development of organs which Gall had not studied, and which are calculated to lead into error. The result of my anatomical researches," he adds, "to which I have given the closest attention, is, that the difference of organization of the brain and skull between musical birds and those which do not sing, is appreciable only in comparing individuals of the same species or genus."¹

In the *Phrenological Journal*, vol. xv. p. 358-9, and p. 60, 62-3-6, cases are reported, in which individuals began to sing when this organ was excited in them by mesmerism.

¹ *Elements of Physics*, vol. i. p. 493.

² *Traite de Phrenologie*, tome ii. p. 371.

33.—LANGUAGE.

THE history of the discovery of this organ has already been given in the Introduction, p. 76.

A large development of it is indicated by the prominence and depression of the eyes ; this appearance being produced by convolutions of the brain, lying on the posterior and transverse part of the upper orbital plate, pressing the latter, and with it the eyes, more or less forward, downward, or outward, according to the size of the convolutions. When the knowing organs are very large, and the eyebrows project, the eyes may *appear* less prominent than they really are. The projection of the eyes over the cheek-bone, and their depression downwards, are the proper signs of the organs being large.

The functions of this organ will be understood by a short elucidation. The different faculties being active, produce desires, emotions, and intellectual conceptions. The mind, wishing to communicate a knowledge of these to other individuals, accomplishes this end by making *signs* expressive of their existence. These signs may consist of the peculiar gestures, looks, and cries, that naturally accompany the action of the several faculties, and which, being part of our constitution, are universally understood. For example, when the mind is deeply impressed by fear, a certain terror-stricken expression is spread over the countenance, indicative of the emotion. When it is wrapt in pride, the head is carried high, and a cold, repulsive, arrogant aspect is presented to the spectator. These signs constitute the elements of natural language, and need only to be presented, to be understood, in all countries, and by all nations.

But mankind possess also the power of inventing and establishing *arbitrary signs* to express their feelings and conceptions. For example, the words, *love*, *compassion*, and *anger*, are mere conventional signs, by which we in Britain agree to express three internal feelings ; and there is no

natural connexion between the signs and the things signified. The metaphysicians attribute this talent to association ; but it is a peculiar power of association given by the faculty of Language only. Persons possessing much of this faculty, have a great natural power of inventing arbitrary signs, and of learning the use of them when invented by others. As this faculty, however, gives the talent merely for *expressing* our feelings and ideas, by means of sounds and forms, it is cognizant of *signs alone*, the *meaning* of which is acquired by other faculties. If a horse, for instance, be presented to the mind, the faculty of Language will give the desire to find a name or sign by which to indicate it, and also the power of associating the appearance of the object with any particular sound or name when invented. But the meaning or signification which the word will embrace, will depend on the perfection of other faculties, and the extent to which they have been used. For example, the faculty of Form will judge of the form of a horse ; Size, of its dimensions ; Colouring, of its colour. A blind man, by the aid of the faculty of Language, may learn to connect his own notions of a horse with the name ; but his conceptions will be very different from those attached to it by a person who sees ; for the blind man could not judge of its colour at all, and not very correctly of its form and size. In the same way, any individual possessing the organ of Language, may learn the manner in which the word *justice* is generally used ; but the meaning attached to it, in the mind of a person like David Haggart, who was extremely deficient in the organ of Conscientiousness, will be very imperfect, when compared with the notion which would be connected with it by one in whom that organ was extremely large.

Every metaphysical author complains of the ambiguity of words, and shews how the vagueness of their signification retards the progress of moral and intellectual science :—the exposition now given, shews whence this vagueness arises. Before individuals can attach precisely the same conceptions to words expressive of feelings and judgments of the under-

standing, they must possess a similar combination of faculties ; and as no two individuals do possess an exactly similar combination of faculties, so as to be capable of feeling and judging alike, there will be shades of difference in the meaning attached by different persons to such terms, in spite of every effort to define them. In consequence of this difference in the faculties, the very definition itself is differently apprehended. In mathematics and algebra, the things indicated by the signs are not feelings, which vary in every individual, but relations and proportions of space and numbers, which have a definite and fixed existence, and which, if apprehended at all, can be conceived only in one way. Hence arises the precision of the language of these sciences, compared with that of metaphysics and moral philosophy.

If these principles be correct, they demonstrate the impossibility of framing a philosophical language, applicable, with perfect precision, to moral disquisitions. To apprehend the very definition of the words, we must be able to experience the sentiments which they are intended to indicate ; and many persons are capable of doing so only in a very imperfect degree. In attending to the style of an author, we may observe that he uses those words with most precision and felicity, which express mental feelings or operations naturally vigorous in himself. Mr Stewart, for example, writes correctly and with great beauty in narrative, and on topics connected with moral sentiment ; but his style becomes loose and inaccurate, when he enters on original abstract discussion, requiring the activity of the higher intellectual powers. I infer from this, that in him the knowing and sentimental organs were more amply developed than those of reflection. Moore uses epithets and illustrations expressive of attachment, with great frequency and inimitable beauty ; and we may conclude, that in him, Adhesiveness, which gives that feeling, is very strong. John Bellingham, the murderer of Mr Perceval the prime minister of England, on the other hand, in his voluminous memorials, petitions, and letters, was continually writing about

justice and injustice, and about cruelty and oppression exercised towards him ; but the acts which he specifies as such, are discovered by every well-constituted mind, not to have possessed the characters which he ascribed to them, and his writings on these points are replete with abuses of words. This, I apprehend, arose from the great deficiency of Conscientiousness which is discernible in his head. In professional practice, also, every lawyer meets with individuals who pretend ardently to desire justice, and who speak incessantly about it, but who evidently do not perceive what it is ; the selfish faculties in their case so far predominating over Conscientiousness, that they never attain to correct notions of equity. The same thing happens in regard to religion. Many persons talk about it, and against it, without comprehending the real elements of a true faith. In like manner, most men will acknowledge in words that charity is a duty ; but, on inquiring of different persons what constitutes charity, we shall find their notions of the meaning of the word, and of the duty also, to vary exceedingly, according to the development of Benevolence, in proportion to Acquisitiveness and Self-Esteem in their heads.¹

The power of associating, by means of the faculty of

¹ These principles enable us to explain, in a simple manner, the source and nature of eloquence. It is a trite observation, that every passion is eloquent ; that is to say, every propensity or sentiment being vividly active excites the faculty of Language to give it utterance ; and when the mental emotion is strongly felt, the words partake of the force, and are distinguished by the precision, which characterise the feeling. Popular eloquence draws largely from the propensities and sentiments, and hence in many distinguished orators we do not observe so large a development of the intellectual organs, as those persons would expect who imagine that oratory is altogether an intellectual product ; but in them an ample endowment of the organs of the propensities and sentiments will be discovered. The Phrenological Society possesses masks of Burke and Curran. The former is by much the more distinguished for intellect in his printed remains, and his forehead is the better developed ; but the impression made by Curran on a popular assembly was the greater of the two. On analysing Curran's orations, however, as formerly remarked (section on Wit), no higher degree of reflecting power will be discovered in them than what is indicated by his mask.

Language, conceptions with signs, is limited in one respect. Any *indifferent* object may be selected and used as the arbitrary sign of a propensity, sentiment, or conception ; but if the object already stands in a *natural* relation to any faculty, it cannot, except with great difficulty, be made the arbitrary sign of an opposite emotion. For example, we might, by a mutual understanding, constitute a square figure the artificial sign of the emotion termed *rage*. After the agreement was understood, that figure would suggest the notion of rage, just as well as the letters now composing that word, which are mere forms placed in a certain order. But, if we were whimsical enough to use the outline of a sweet and smiling countenance, which, likewise, is merely a species of form, as the sign of this emotion, we could not, without great difficulty, learn to associate the idea of rage with this figure, for it is already the natural sign of emotions entirely opposite : it would excite Benevolence *directly*, more forcibly than Destructiveness indirectly, through the medium of Language ; it would call up ideas of joyfulness and innocence, rather than of anger and cruelty. In the same way, we might associate feelings of veneration, pity, affection, or grief, with soft and *slow* notes of music, because these notes themselves stand in a natural relation to such emotions ; while it would be difficult to form associations, by which they should become the artificial signs of violent rage, jealousy, and fury.

Philosophers have written voluminous disquisitions on the influence of words on thought ; but if the view now presented be correct, feelings and conceptions must, in every instance, *precede* the intelligent use of words ; and the invention of a term for which no idea exists, instead of being a step towards the advancement of knowledge, would be a simple absurdity. It is true that the language of any nation is a correct index of its mental attainments ; but this happens, because, in proportion as a people acquire notions, they invent words to express them, and not because they first invent words and then use them as a means of acquiring ideas.

The art of *writing* greatly facilitates the progress of knowledge ; but it does so only by giving precision to words and permanence to thought. Written words are to emotions and intellectual conceptions, what figures are to numerical quantities, and their relations ; they serve to express, and enable us to record, our past attainments, and thereby to advance, unincumbered, in the path of discovery : in no instance, however, can they profitably precede the acquisition of ideas. The new nomenclature of chemistry smooths the study of that science ; but the nomenclature itself was the *result* of correct and enlarged ideas of the nature and relations of chemical substances, and could not possibly have been formed before these were obtained.

If these principles be sound, it is a grievous error in education to devote the years of youth chiefly to the study of languages. In all cases, knowledge of objects and their qualities and relations should precede the study of words ; for it is only in consequence of that previous knowledge that words become significant and useful. A good education should embrace the culture of *all* the faculties ; which can be attained only by exercising each on its own objects, and regulating its action.

Persons who have a great endowment of the organ of Language, abound in words. In ordinary conversation their expressions flow like a copious stream—in making a speech they pour out torrents. When this organ is extremely large, and those of reflection small, the individual is prone to repeat, to the inconceivable annoyance of the hearer, the plainest sentences again and again, as if the matter were of such difficult apprehension, that one enunciation was not sufficient to convey the meaning. This practice appears to originate in an immoderate power and activity of the organ of Language—so great, that delight is felt in mere articulation, independently of reflection. The same combination produces a verbose, cumbersome, and inelegant style of literary composition. Thomson's *Seasons* are chargeable with a redundancy of words, and, in the portraits and busts of the author, the organ

appears very large. In *Dramas of the Ancient World*, by David Lindsay, we meet with examples of this kind of writing:—

“ My gracious kinsman
 What good occasion now hath brought thee hither ?
 NOAH.—Nothing of good, for good is flown for ever
 Away from this *stained* world ; and *spotless* truth,
 And *weeping* mercy, veiling their *bright* looks
 With their *spread* pinions, have forsaken earth,
 And sought a refuge at the sacred foot
 Of the ALMIGHTY's throne.”

The Deluge, p. 16.

Another example occurs in the following passage, extracted from a periodical publication.

“ We hope it will prove interesting to our readers, occasionally to take a *popular sketch* of the *brilliant success* attending the *meritorious activity* of the *respectable circle* of *scientific chemists*, whose pursuits, if judiciously exhibited, are fitted to interest every mind endowed with intellectual curiosity.”

When the organ is very small, there is a want of command of expression, a painful repetition of the same words, and a consequent poverty of style, both in writing and in speaking. The style of that author is generally most agreeable, in whom the organs of Language and of Reflection bear a just proportion to each other. If the intellectual powers are very acute and rapid, and Language not in equal proportion, a stammer in speech is frequently the consequence. Individuality, Eventuality, Time, Comparison, and Imitation, greatly assist this faculty, when applied to the acquisition of foreign languages and grammar. I have observed that boys who are *duces* in classes for languages, generally possess such a combination ; and that this endowment, with moderate Language, accomplishes more, in the way of scholarship, than a large development of the latter organ, with a small endowment of the others. Such individuals have a great facility in recollecting rules, as matters of fact and detail, in tracing

etymologies, and in discriminating tenses and shades of meaning : The combination alluded to, gives them great readiness also in using their knowledge, whatever the extent of it may be.

The doctrine before laid down, that the signification of words is learned by means of other faculties, removes an apparent difficulty, in regard to learning to repeat, which occasionally presents itself. A person with a moderate organ of Language, will sometimes learn songs, poetry, or particular speeches, by heart, with considerable facility and pleasure ; but in such cases, the passages committed to memory will be found highly interesting to his other powers, such as Ideality, Causality, Tune, Veneration, Combaticiveness, or Adhesiveness ; and the study and recollection of vocables only, will be difficult and disagreeable to him. To a person, on the other hand, in whom the organ is decidedly large, mere words are interesting, and he can learn them without caring much about their meaning. Hence, also, a person with a moderate organ of Language and good reflecting organs, may, by perseverance, learn languages, and attain proficiency as a scholar ; but he will not display copiousness, fluency, and richness of expression in his style, either in his own or in a foreign tongue.

There appears to be a quality of brain, no external indication of which is known, which communicates the character of retentiveness to all the intellectual organs, and which greatly augments their power of remembering the impressions which they have received. Sir Walter Scott appears to have possessed this quality ; for it is said that he never forgot any thing which he had ever heard, seen, or read.

It is difficult to determine precisely, on what powers the talent for learning the *spirit* of languages depends. The fact is certain, that some individuals easily learn the spirit of different languages without having a great memory for words ; while others readily acquire words, without catching the spirit of any language. Dr Gall admits two organs of Language ; one he names "*Sens des mots, sens des noms, mémoire*"

des mots, mémoire verbale ;” and the other, “*Sens du langage de parole ; talent de la philologie :*” to the latter he attributes the talent for philology, and for acquiring the spirit of languages. The former organ he describes as lying on the posterior half of the super-orbital plate, and, when large, pushing the eyes outwards ; it gives a talent for learning and recollecting words, and persons possessing it large recite long passages by heart, after reading them once or twice. The latter organ, says he, is placed on the middle of the anterior part of the super-orbital plate, and, when it is large, the eyeball not only projects, but is depressed ; the depression producing the appearance of a bag, or folding, in the lower eyelid. Persons possessing this form of eyes, he adds, have not only an excellent memory of words, but a particular disposition for the study of languages, for criticism, and, in general, for all that has reference to literature.¹ Dr Gall states, at the same time, that the determination of the size of the organ of words is attended with much difficulty ; as, from its situation, it may extend itself to the sides, as well as forwards,—increasing, in the former case, the general breadth of the head across the temples, or even between the eyes ; so that much remains to be ascertained in regard to it.

Dr Spurzheim, on the other hand, admits only one organ of Language, lying transversely on the posterior portion of the super-orbital plates;² and holds that it takes cognizance both of words and of the spirit of languages—that it “makes us acquainted with arbitrary signs, remembers them, judges of their relations, and gives a disposition to indulge in all exercises connected with words.” “It seems to me,” says he, “that the organ of words must have its laws as well as those of Colour, Melody, or any other faculty. Now, the law of words constitutes the spirit of language. I am satis-

¹ *Sur les Fonctions du Cerveau*, tome v. p. 18 and 30.

² I have seen the skull of Dr Spurzheim, in the possession of the Phrenological Society at Boston, U. S. There is in it a large transverse depression in the posterior portion of each super-orbital plate, indicating a large organ of Language. He spoke and wrote several languages successfully.

fied," he continues, "that this opinion is correct ; because the spirit of every language is the same, just as the essence of all kinds of music is alike ; that is, the laws or principles of music and of language rule universally, and are constant ; they are only modified in different nations, by modifications in their organs, and dissimilar combinations of these in each."¹

I am disposed to coincide with Dr Spurzheim in this view ; and perhaps, by analyzing the source whence the structure of language proceeds, we may obtain some light on the origin of a taste for the spirit of languages, as distinguished from the power of learning and recollecting words.

Language, then, expresses merely the feelings and conceptions produced by the various primitive faculties acting separately or in combination. Now, let us imagine the cerebral development of a nation to be distinguished by large organs of the propensities, sentiments, and knowing faculties, small reflecting organs, and little Secretiveness. Their language, being the spontaneous growth of such a combination, would naturally abound in words expressive of simple feelings, and of conceptions of individual objects and their qualities, while it would be poor in terms of abstract relation, conceived by the faculties of reflection. For the same reason, the transitions in such a language would be rapid, like those in *Mrs Quickly's* speech, and they would follow the order of the occurrences which excited the ideas ; Secretiveness being small, there would naturally be little involution in the arrangement of the words. Suppose, on the other hand, that in another nation Secretiveness and the reflecting organs predominated ; the genius of their language would differ widely from that of the people first described. Their expressions for discriminating individual conceptions would be fewer, while their stock of words and phrases designative of abstract relations, would be more extensive, and the general structure of their sentences would be more involved. Suppose again, two individuals, with equal organs of Language,

¹ *Phrenology*, p. 288.

and consequently equal power of learning words, as mere signs, to possess, the one a head like the former, and the other a head like the latter people,—and that they attempted to learn these different languages,—it appears probable, that the one with the first mentioned development would find the genius of the first language the more easy and natural to him ; he would acquire its forms of collocation, and its niceties of designation, with facility and delight, because they would coincide with the modes of feeling and thinking of his own mind. If, on the other hand, his attention were directed to the language of the second people, he would meet with greater difficulties. Although he might master the words, he would not find the idioms natural to him ; the forms of expression depending on the reflecting powers, and likewise the involutions introduced by Secretiveness, would, through defect of tact to apprehend them, appear to him extremely intricate and unintelligible,—he would be obliged to learn them by *rule* ; and rules alone never produce a really excellent linguist. The second language, on the other hand, would appear natural and easy to the other individual possessing a head like that of the people who invented it.

If these views be correct, the talent for learning the genius or spirit of different languages will depend upon the development of the organ of words, in conjunction with the power of the individual to enter into the feelings, and form the precise kinds of intellectual combinations, of different nations ; or, upon his capacity to enter into the mental state of others—a power conferred chiefly by Secretiveness, Imitation, Individuality, and Eventuality, aided of course by the other primitive faculties. Although this is merely a theory, thrown out for the consideration of the reader ; yet it has been suggested by facts. I know an individual who has an excellent development of many of the organs, but is a very decided character, and possesses little of the talent of entering into, or accommodating himself to the feelings of others ; and he experienced an inconceivable difficulty in acquiring the simplest French idioms. I know another young gentle-

man who was in the same situation in regard to Latin, and who has little versatility. In them, the organ of Language is rather deficient: On the other hand, I have met with several persons in whom the organ was equally deficient, and who possessed the power of learning foreign idioms; in their case, however, the power of amalgamation with the mental states of others, was decidedly greater, and their organs of Secretiveness, Imitation, Individuality, and Eventuality, were larger.

Although the theory of the talent for philology is involved in considerable obscurity, it is quite certain that the ready command of words in speech or writing bears a proportion to the development of the organ situated above the super-orbital plate, and that a fluent orator or author is never found deficient in it. In some individuals distinguished for a talent for learning languages, I have observed that the eyes were neither prominent nor depressed in any conspicuous degree, but in the middle of the eyebrows, at and above the organ of Colouring, there was an extraordinary fulness and prominence of the head; as if the convolutions of the brain lying in that situation had been pushed unusually outward and forward. Only by a *post mortem* examination could it be ascertained whether this appearance was caused by a large development of the organ of Language, extending itself forward, and pushing the organs of Colouring and Time outward, in place of extending itself downward, as it usually does.

Dr Broussais observes that men with large organs of Language and deficient reflecting organs, pour out torrents of words without ideas. This is never done by persons who are deficient both in the organs of Language and in those of the intellectual faculties. If a person possess large intellectual organs, these will acquire many ideas, and although he should possess only a moderate development of Language, this will suffice to learn expressions sufficient to designate and communicate his ideas. The more his knowledge is increased, the more will his words be multiplied, and such a

person may come at last to possess a very extensive vocabulary without large organs of Language : But he will never be rich in phraseology. He may have words for all his ideas, but he will not have a variety of expressions for them. His style may be perspicuous and expressive, but it will never be rich or redundant. *Broussais' Lectures on Phrenology*, p. 616.

Dr Vimont treats largely of this faculty, and draws the following conclusions from the facts which he mentions :—

1st, That in man and animals a faculty exists, the function of which is to recall sounds, whether articulated or not articulated ;

2dly, That the talent called "*sens des Langues, talent du philologue*," is not the result of a special faculty, as Gall pretends, nor a mode of judgment of the faculty of verbal memory, as Spurzheim announces ; but arises from the higher intellectual faculties which the faculty of verbal memory may powerfully aid ;

3dly, That projecting eyes, or eyes having a pouch under the lower eye-lid, described as the characteristic of the organ of verbal memory, or Philology, large, are not the constant signs of a considerable development of these two faculties, although they accompany them so often as to merit the attention of Phrenologists.¹

Numerous cases are on record of the power of using words being impaired by disease, when the ability to articulate, and the powers of perception and judgment, remained entire. In the *Transactions of the Phrenological Society*, p. 235, Mr Hood of Kilmarnock has communicated a very interesting instance of this kind which fell under his own notice as medical attendant. The patient, a sober and regular man of 65 years of age, possessed of the ordinary knowledge of written and spoken language, on the evening of 2d September 1822 suddenly began to speak incoherently, and became quite unintelligible to all those who were about him. "It was discovered that he had forgotten the name of every object in

¹ *Traite de Phrénologie*, tome ii. sec. xi.

nature. His recollection of *things* seemed to be unimpaired, but the *names* by which *men* and *things* are known, were entirely obliterated from his mind, or rather he had lost the faculty by which they are called up at the control of the will. He was by no means inattentive, however, to what was going on ; and he recognised friends and acquaintances perhaps as quickly as on any former occasion ; but their names, or even his own or his wife's name, or the names of any of his domestics, appeared to have no place in his recollection.

" On the morning of the 4th September," says Mr Hood, " much against the wishes of his family, he put on his clothes, and went out to the workshop ; and, when I made my visit, he gave me to understand, by a variety of signs, that he was perfectly well in every respect, with the exception of some slight uneasiness referable to the eyes and eyebrows. I prevailed on him, with some difficulty, to submit to the reapplication of leeches, and to allow a blister to be placed over the left temple. He was now so well in bodily health that he would not be confined to the house : and his judgment, in so far as I could form an estimate of it, was unimpaired ; but his memory for words was so much a blank, that the monosyllables of affirmation and negation seemed to be the only two words in the language, the use and signification of which he never entirely forgot. He comprehended distinctly every word which was spoken or addressed to him ; and, though he had ideas adequate to form a full reply, the words by which these ideas are expressed seemed to have been entirely obliterated from his mind. By way of experiment, I would sometimes mention to him the name of a person or thing—his own name, for example, or the name of some one of his domestics,—when he would have repeated it after me distinctly, once or twice ; but, generally, before he could do so a *third* time, the word was gone from him as completely as if he had never heard it pronounced. When any person read to him from a book, he had no difficulty in perceiving the meaning of the passage, but he could not him-

self then read ; and the reason seemed to be, that he had forgotten the elements of written language, viz. the names of the letters of the alphabet. In the course of a short time, he became very expert in the use of signs ; and his convalescence was marked by his imperceptibly acquiring some general terms, which were with him at first of very extensive and *varied* application. In the progress of his recovery, time and space came both under the general appellation of *time*. All future events and objects before him were, as he expressed it, '*next time* ;' but past events and objects behind him, were designated '*last time*.' One day being asked his age, he made me to understand that he could not tell ; but, pointing to his wife, uttered the words '*many times*' repeatedly, as much as to say that he had often told her his age. When she said he was sixty, he answered in the affirmative, and inquired what '*time*' it was ; but as I did not comprehend his meaning distinctly, I mentioned to him the hour of the day, when he soon convinced me that I had not given him the proper answer. I then named the day of the week, which also was unsatisfactory ; but, upon mentioning the month, and day of the month, he immediately signified that this was what he wanted to know, in order to answer my question respecting his age. Having succeeded in getting the day of the month, he then pointed out the '*time*' or day of the month on which he was born, and thereby gave me to understand that he was sixty years of age, and five days, or '*times*,' as he expressed it."

In the month of December 1822, his convalescence was so complete, that he could support conversation without much difficulty. The headachs, with which he had been so long affected, recurred occasionally ; but in other respects he enjoyed, generally, tolerably good health. On 10th January 1825, he suddenly became paralytic on the left side. On 17th August he had an attack of apoplexy, and on 21st he expired. In *The Phrenological Journal*, vol. iii. p. 28, Mr Hood has reported the dissection of his brain. In the left hemisphere, lesion of the parts was found, which terminated

"at half an inch from the surface of the brain, where it rests over the middle of the super-orbital plate." Two small depressions or cysts were found in the substance of the brain, "and the cavity, considered as a whole, expanded from the anterior part of the brain till it opened into the ventricle in the form of a trumpet. The right hemisphere did not present any remarkable appearance." Another case is reported by Mr Hood, in vol. ii. p. 82.

In vol. x., p. 68, Dr Inglis reports the case of Maria Wilson, aged 33, who was shot by a sheriff-officer; "the ball entered the cranium at the external orbital angle of the frontal bone." She continued "to observe and know every one, and understood what was said to her;" and her tongue was not affected, but she lost the power of using words. The ball was extracted, and she recovered her health, and also the use of words. Dr Inglis reports another case, in which the power of using words was suspended in a boy in concomitance with "violent pain over both eyes, and also of the eye-balls." Both the pain and mental impediment were removed by the application of cold cloths "over the eyes and frontal ridge."

In July 1836 I was present at the dissection of the brain of a gentleman who died in his 94th year, and who for several years before his death had laboured under a deficiency in the command of words, similar to that experienced by Mr Hood's patient. His understanding was sound, and he comprehended spoken language when addressed to him; he could articulate perfectly, but he could not command the proper words to express his ideas. A small cavity was found in the left *corpus striatum*, about an inch back from the organ of Language. There had obviously been effusion of blood into it, which had been absorbed, leaving a cavity of a quarter of an inch in diameter lined with a yellowish membrane. The right hemisphere was entire. The brain presented appearances of general chronic inflammatory action.¹

A presbyterian clergyman in Bath used to object to Phre-

¹ I have fully reported this case in *The Phrenological Journal*, x. 352; See also pp. 565, 632, 710

nology as unsupported by evidence and the authority of great names, when his wife was seized with apoplexy. She recovered, but her power of using words was impaired. Her other faculties remained entire; she could understand language when addressed to her, and articulate perfectly, but could not use words to express her own ideas. After this event her husband ceased to condemn the science.

Dr Spurzheim mentions having seen, at Inverness, a case closely resembling the foregoing; and also one of the same nature at Paris. Dr Gall cites from Pinel the case of a notary, who, after an attack of apoplexy, had forgot his own name, and those of his wife, children, and friends, although his tongue preserved all its mobility. He could no longer read or write, but nevertheless remembered objects which had formerly made an impression on his senses, and which related to his profession. He frequently pointed out with his finger the files which contained documents that could not be found, and indicated, by other signs, that he preserved the former train of ideas entire.¹ Dr Gall mentions also the case of a soldier sent to him by Baron Larrey, whom he found to be very nearly in the same condition as the notary mentioned by Pinel. "It was not his tongue," says he, "which was the source of his embarrassment, for he was able to move it with great agility, and to pronounce well a great number of isolated words. It was not his memory either which was in fault, for he shewed evident dissatisfaction with himself upon many subjects which he wished to mention. The only faculty in him which was impaired, was that of speech. This soldier, like the patient of M. Pinel, was rendered incapable of reading or writing."²

M. Bouillaud, an eminent Parisian phrenologist, has made extensive investigations into the pathology of the organ of Language. In an essay which he has published on this subject,³ a number of interesting cases of loss of the power of

¹ Pinel, *sur l'Aliénation mentale*, 2de édition, § 105.

² *Sur les Fonctions du Cerveau*, tome v. p. 38.

³ *Archives Generales de Médecine*, tome viii. pp. 25-45. 1825.

speech are reported, partly from his own observations, and partly from the works of MM. Rostan and Lallemand, two of the most accurate and highly esteemed continental writers on nervous diseases. In two of the patients, the anterior lobe, at the part which corresponds to the orbital arch, was reduced to soft purulent-looking matter. A third was restored to health. Not fewer than sixteen instances follow, in which the recollection of words and their relations, and the ability to use them, were altogether destroyed, although it was evident from the looks and gestures of the patients that their silence resulted from no want of ideas, but solely from incapacity to express them. In these cases the same organic lesion was discovered. M. Bouillaud's essay led him into a successful controversy with M. Scipio Pinel, of which some account will be found in *The Phrenological Journal*.¹

In another volume of the same Journal,² Mr John Inglis Nicol, one of the medical attendants of the Northern Infirmary at Inverness, has reported two cases of a similar kind. One of the patients died; and it was found on dissection, that, "about the centre of the under surface of the anterior lobe, the convolutions, to the extent of half-a-crown, were changed in colour to a reddish brown."

In a case reported by Professor Syme,³ the faculty of Language was impaired, and on dissection, both anterior lobes were found healthy, with the exception of the parts constituting the organs of Form and Language. In this, as in most of the other instances referred to, the patient seemed to understand perfectly whatever was *said* to him, but had scarcely any recollection of *written* or *printed* words. It is difficult to explain why the latter exclusively should have been unintelligible. Perhaps the disease of the organ of Form may have had some share in producing this phenomenon.

Pain over the eyes frequently accompanies derangement or deprivation of the power of speech. This is seen in cer-

¹ Vol. viii. p. 256.

² Vol. iii. p. 616.

³ *Edin. Med. and Surg. Journ.* No. 117; and *Phren. Journ.* ix. 17.

tain diseases, such as plague, yellow fever, and typhus;¹ and has been observed also in cases of cerebral injury.²

Mr Macnish reports the following case. "I know a gentleman," says he, "who, in consequence of excessive over-working of his brain during the composition of a French and English dictionary, lost the memory of words for a considerable time. His knowledge of French, German, and Italian, which was very extensive, disappeared from his mind as if by enchantment, and did not return till the brain had its usual energy restored by quiescence." Mr W. R. Scott of the Institution for the Deaf and Dumb in Doncaster, Yorkshire, reports the case of a deaf and dumb pupil in whom the organs of Language were small, while those of Individuality, Weight, and Size, were large, and those of Constructiveness very large. The boy, says he, had been upwards of four years at school, "and the progress he has made in the knowledge of words is extremely limited;" but he "draws correctly and with ease," "he delights in constructing pieces of mechanism," and "is very clever in the use of tools."

In the ninth volume of *The Phrenological Journal*,³ a valuable series of papers, On Morbid Manifestations of the Organ of Language, as connected with insanity," has been published by Dr Browne, physician to the Crichton Royal Institution for Lunatics, Dumfries. He describes successively, and illustrates by numerous cases, the various kinds of symptoms by which the derangement shews itself:—1. Rapidity of voluntary utterance; 2. Involuntary utterance; 3. Rapidity of involuntary utterance; 4. Total loss of verbal memory; 5. Partial loss of memory of all words indiscriminately; 6. Partial loss of memory of certain classes of words, such as names, or substantives generally; 7. Impaired perception of the relation of words to the things signified;

¹ *Phren. Journ.* vol. viii. p. 422.

² *Ibid.* vol. viii. p. 189; ix. 119, 516; x. 86, 118, 483, 566; xi. p. 165, 291; xiii. p. 344; xiv. 55, 133, 159; xv. 132, 241, 323.

³ Pages 250, 308, 414.

8. Impaired perception of the relation of words to each other ; and, 9. Total loss of perception of these relations. It appears from several cases reported by Dr Browne, that the activity of the organ sometimes rises to so high a pitch of exaltation in lunatics, that the utmost difficulty is experienced in preserving silence, and occasionally words flow with astonishing volubility, in direct opposition to the will of the speaker.¹ Many lunatics indulge in the vociferation of most violent and disgusting language ; Dr Browne considers it pretty certain, both from his own observation and that of others, that, in a great majority of such cases, the ejaculations are involuntary, and result from a special excitement of the organ of Language, by which certain words are called up without the assent of the patient, and sometimes even contrary to his inclination. It is important that the possibility of derangement confined to this single faculty should be generally known ; for, as Dr Browne remarks, " little doubt can be entertained, that, in many such cases, great and irreparable injury and injustice may be committed by restraining or confining individuals as lunatics, who are merely monomaniacs in the power of Language. The effects of joy, fear, affection, and love of approbation, in suspending or limiting the exercise of language, are known and have been felt by all ; and it may readily be conceived, that in a disposition highly susceptible of such impressions, the slightest deviation from health in the organ of Language will become doubly perceptible, and may lead to misconstruction and consequences of the most melancholy kind."² Dr Browne has more recently published in the *Journal*,³ an instructive account of that species of insanity of which the symptom is speech in unknown tongues, and which is not uncommon among the fanatics of Britain.

Professor William Gregory mentions, that he has repeatedly observed the faculty of Language to be affected by the use of morphia. " If I take," says he, " from twenty to

¹ Pages 311--13.

² Page 422.

³ Vol. ix. p. 593.

thirty drops of the solution of muriate of morphia, it produces, in the course of an hour, a very agreeable state of calm ; and, for some hours after, the organ of Language is so strongly stimulated, that I find it difficult to stop when I begin to speak ; and I have repeated this experiment, which is attended with no inconvenience, so often, that I am quite confident of the result."¹ Having, on other occasions, taken a considerably larger quantity of the solution, he found it to produce a marked derangement of the faculty of Language, amounting to a dissociation of words from the things signified, and, in the most severe instance, accompanied by violent headach in the situation of the organ. Dr Gregory considers it probable, that morphia acts exclusively upon the anterior lobe, more particularly the organ of Language ; and that an over-dose causes entire derangement of that faculty. These conclusions, he adds, will have to be confirmed, or otherwise, by the observations of intelligent practitioners. He justly remarks, that if medical men, acquainted with Phrenology, were to direct their attention to the specific action of different remedies on the minds of their patients, a new and interesting field of inquiry would be laid open, and much light would probably be thrown on many obscure points in mental philosophy. In the *Phren. Journ.*, vol. xv. p. 38, Dr Otto states that *tobacco* excites the organ of Language, and also the organs of the intellectual faculties ; and that *beer* "depresses the intellectual faculties, in particular the organ of Language."

Some individuals, in whom Language is large, state as an objection, that they have a bad memory of names ; but they will be found in general to have a deficient memory of the objects which the names indicate ; for example, if they cannot recollect names of persons, they will have deficient Form and Individuality ; and if they cannot recollect names of tunes, they will be deficient in Tune. The defect lies in the faculty which apprehends and recollects the primitive

¹ *Phrenological Journal*, vol. viii. p. 163.

idea, for which Language recollects the name ; and it is quite conceivable, that, although Language may be powerful, yet it may not furnish names, as mere words, when the thing signified is not present in the mind.¹

In the *Phrenological Journal*, vol. xv. p. 137, Mr Hytche remarks, that, " amongst the many distinguished men who have been wholly or partially devoid of any taste for music, may be mentioned, Johnson, Burke, Windham, Fox, Mackintosh, and Charles Lamb ; and that, nevertheless, the speeches of Burke, Windham, and Fox, were delivered with graceful intonation of voice, and the writings of Johnson, Mackintosh, and Lamb, were well modulated." He mentions also similar cases known to himself. Mr Hytche considers that the organ of Tune, which he names " Tone," " is not merely a music-judging or tune-learning organ ; but that its province is to appreciate sounds," and he is disposed to ascribe the perception of rhythm to it ; but he does not appear to me to account in a satisfactory manner for the cases cited by himself, in which the power of rhythm was strong in conjunction with deficiency of musical perception. I may be allowed to mention that, in my own head, the organ of Tune is small ; that I am able to *perceive* melody, and to enjoy it, while the instrument is sounding, but have no *memory* of it, being incapable of recalling in my own mind, or reproducing the simplest musical note. My organ of Time is better developed, and I am more alive to the quality of time in music. When a boy, I could scan with facility every va-

¹ See remarks by Dr A. Combe on the talent for recollecting names, *Phrenological Journal*, vol. iii. p. 120.—In vol. v. p. 431, is recorded a case where memory of names was impaired by a severe blow on the left eyebrow, while the memory of other classes of words does not seem to have been injured ; another case of loss of memory of names only, is noticed in vol. viii. p. 415.—Mr Hewett Watson has published, in vol. vii. p. 214, some observations on memory of names.—Dr W. A. F. Browne states it as the result of his experience, that, in cases of partial loss of language, the words remembered appear to be substantives when Individuality is vigorous, abstract terms when Causality is powerful, and adjectives when the lateral knowing organs are large and unimpaired ; vol. viii. p. 423.

riety of Latin verses, and give the rules, which many of my schoolfellows who greatly excelled me in other exercises, could never learn to do. I have not been able to determine satisfactorily on what organs this talent depends.

The lower animals appear to be endowed with the organ of language in *some* degree ; for they learn the meaning of arbitrary signs in so far as they possess the feelings and conceptions which these express. Dr Vimont agrees with George Le Roy in the opinion, that the lower animals possess the faculty of Language, and use it in their communications with each other. "If a mother," says Le Roy, "alarmed for her offspring, had only one cry to announce every danger, we should see the young, on hearing this cry, execute always the same movements. But, on the contrary, their actions vary with the circumstances; sometimes the command is to fly precipitately ; sometimes to conceal themselves ; sometimes to offer battle. Since, in consequence of the order issued by the mother, the actions are different, it follows that the language must have been different." In Dr Broussais' lectures, pp. 618, 619, there is an excellent dissertation on the language of animals. In general, says he, they have one accent for expressing terror, another for calling assistance, one for expressing despair, one he believes for exciting compassion, one for expressing joy, one for calling to partake of prey, one or several to invite to love, and perhaps others; but these modulations are inspired by instincts which act on their organs of voice, and which call into play the same instincts in those individuals of the same species who hear them, and in man also, on account of the relation between their organization and ours. There is no evidence, says he, that they are conventional terms, applicable to particular objects. This would imply the necessity of an apprenticeship.

The organ is large in the companion of Gall, Sir J. E. Smith, Humboldt, Pope, Voltaire, and Rammohun Roy ; and small in the mask of Fraser.—Established.

GENERAL OBSERVATIONS ON INDIVIDUALITY, AND THE
OTHER KNOWING OR PERCEPTIVE FACULTIES.

No objection to Phrenology is more frequently repeated, than that such and such persons have retreating foreheads, and yet are very clever. A short explanation will serve to remove this difficulty. In the first place, a forehead may *appear* retreating, not because the reflecting organs are *greatly* deficient, but because the knowing organs are very prominently developed, so that if the latter were diminished in size, the former would *appear* relatively larger. But every one must perceive that, the only effect of such a change would be to diminish the perceptive, without increasing the reflective powers, although, in such a case, the unskilful observer might imagine the development of the forehead to be improved. In the mask of Henri Quatre, the forehead appears to slope; whereas, if the knowing organs were reduced to the same state of small projection beyond the cheek-bones, as in the mask of Voltaire, it would appear much more perpendicular. But this would clearly detract from the mental power. It would cause the reflecting faculties to predominate, only by diminishing talent in the department of observation.

But, in the next place, let us suppose that a head does retreat considerably, still Individuality, and the other knowing organs, may be large; and if we attend to the *range* of these powers, we shall perceive that the individual may be deficient in Causality and Comparison, and yet be *very clever*, in the popular acceptation of these words. A wide range of sciences, falling under the scope of Individuality and Eventuality chiefly, has already been pointed out, and in these a person so endowed may be very learned. Farther, the details of history, statistics, geography, and trade, all belong to the department of simple knowledge; and in them also he may be eminently skilled. And, finally, in the daily occurrences of life, acuteness of observation, and the

power of treasuring up the lessons of experience, which he may possess, constitute important elements in a practical judgment. If, then, to a large endowment of the knowing organs, a nervous temperament be added, the individual may be observing, active, and enterprising; if Cautiousness be large, he may be prudent, and rarely venture beyond the scope of his abilities; if Conscientiousness be large, he may enjoy that delicacy of sentiment which discriminates intuitively where the right lies, and where the path of honour terminates; and with these endowments there will be no wonder if he act creditably and cleverly in the ordinary walks of life. These are not imaginary suppositions, but descriptions drawn from observations made on numerous individuals engaged in active business. Such persons, however, are never distinguished for profound and comprehensive views of abstract subjects; which can be reached only by the reflecting faculties, not yet treated of.¹

In the preceding pages, it is stated, that the faculty of Form perceives the forms of objects,—Colouring, their colour,—and Size, their dimensions; that Individuality takes cognizance of things existing, and Eventuality of events in general. The question naturally occurs—If the minor knowing powers apprehend *all* the separate qualities of external objects, what purposes do Individuality and Eventuality serve in the mental economy? One important function of Individuality is to form a single intellectual conception out of the different items of information communicated by the other knowing faculties, which take cognizance of the properties of external objects. In perceiving a tree, the object apprehended by the mind is not colour, form, and size, as separate qualities; but a *single thing* or *being* named a tree. The mind having, by means of Individuality, and these other organs, obtained the idea of a tree, as an existing object, may analyze it, and resolve it into its constituent parts of form, colour, and magnitude; but the contemplation of it in

¹ This subject is more fully illustrated in *The Phrenological Journal*, vol. iii. pp. 48, 67.

this manner is at once felt to be widely different from the conception attached to the word *tree* as a whole. The function of Individuality, therefore, is to combine the elements furnished by these other knowing faculties into one, and to produce out of them single conceptions of aggregate objects; which objects are afterwards viewed by the mind as individual existing things, and are remembered and spoken of as such, without thinking of their constituent parts. Although we have no knowledge of the substance of objects apart from their qualities; yet we have a conviction of their substantive existence, and this is given by Individuality. Children early use and understand general terms, such as *tree, man, ship*; and the organ of Individuality is, for the most part, early and prominently developed in them.

Farther, after Form, Colouring, and Size, have furnished certain elementary conceptions, and Individuality has united and conceived them as one, such as *Man*, the faculty of Number may be called into action, to give the idea of plurality; and that of Order to furnish the idea of gradations of rank and arrangement. Now, Individuality, receiving the intimations of all these separate faculties, *combines* them again, and contemplates the *combination* as an *individual object*, and this is an *army*. After the idea of an army is thus formed, the mind drops the recollection of the constituent parts, and thinks of the *aggregate only*, or of the combined conception formed by Individuality; and regards it as a single object.

Eventuality is surrounded by Individuality, Locality, Time, Comparison, and Causality, and forms individual conceptions from their combined intimations. A storm is not a specific existing object, nor is it a quality of any thing; yet the mind clearly apprehends it. It is the result of certain physical elements in violent commotion, and all the faculties last enumerated, together with Eventuality itself, which observes motion, combine in furnishing individual conceptions, which Eventuality unites into one idea, designated by the word *storm*. Revolution is another example.

A revolution does not exist in nature as a substantive thing, but arises from the combined action of numerous moral and physical causes, the result of which Eventuality conceives as one event.

If these views be correct, the meaning attached by different individuals to abstract terms of these classes will be more or less complete, according to the degrees of development of the several knowing organs in their heads. If Colouring be defective, and Form be large, the individual will think chiefly of the forms and dimensions of objects; if Form be deficient and Colouring large, he will observe and conceive their colours much more forcibly than their forms; and his abstract terms will embody each object exactly as it is perceived by his own faculties.

It is interesting to observe the phrenological system, which at first sight appears rude and unphilosophical, harmonizing thus simply and beautifully with nature. Had it been constructed by imagination or reflection alone, it is more than probable that the objection of the minor knowing faculties rendering Individuality and Eventuality superfluous, would have appeared so strong as to have insured the exclusion of one or other as unnecessary; and yet, until both were discovered and admitted, the formation of such terms as those we have considered was inexplicable.

GENUS III.—REFLECTIVE FACULTIES.

THE intellectual faculties which we have considered, furnish us with knowledge of objects, their qualities and relations, and also of events; those which we proceed to treat of "act," as Dr Spurzheim expresses it, "on all the other sensations and notions;" in other words, they judge, not of the qualities and relations of external objects, but of the relations of different classes of ideas produced by the perceptive faculties. They minister to the direction and gratification of all the other powers, and constitute what we call reason or reflection.

34.—COMPARISON.

Dr Gall often conversed on philosophical subjects with a *savant*, possessing much vivacity of mind. Whenever the latter was put to difficulty in rigorously proving his positions, he always had recourse to a comparison. By this means he in a manner painted his ideas, and his opponents were defeated and carried along with him ; effects which he could never produce by simple argument. As soon as Dr Gall perceived that, in him, this was a characteristic trait of mind, he examined his head, and found an eminence of the form of a reversed pyramid on the upper and middle portion of the frontal bone. He confirmed the observation by many subsequent instances. He names the quality “ perspicacity, sagacity, *esprit de comparaison*.” Examples of the appearance of the organ, when large and small, are given on page 92.

The faculty gives the power of perceiving resemblances and analogies. Tune may compare different notes ; Colouring contrast different shades ; but Comparison may compare a tint and a note, a form and a colour, which the other faculties by themselves could not accomplish.¹ “ The great aim of this faculty,” says Dr Spurzheim, “ seems to be to form abstract ideas, generalizations, and to establish harmony among the operations of the other faculties. Colouring compares colours with each other, and feels their harmony, but Comparison adapts the colours to the object which is represented ; it will reject lively colours to represent a gloomy scene. The laws of music are particular, and Tune compares tones ; but Comparison chooses the music according to the situations where it is executed. It blames dancing music in a church ; it is opposed to walking with fine clothes in the dirt, to superb furniture beside common things ; it feels the relation between the inferior and superior feelings, and gives

¹ See Gall *Sur les Fonctions du Cerveau*, vi. 406 ; *Phren. Journ.*, iv. 322 ; vi. 384 ; and ix. 435, 495. Also vol. i. p. 496.

the preference to the latter. Its influence, however, presupposes the activity of the other faculties, and it cannot act upon them if they are inactive. This explains why some persons have taste and good judgment in one respect and not in another. He who is deprived of Reverence, may not be careful enough about its application. He may deride what others respect. But if another possess it in a high degree, and at the same time Comparison, he will wish to bring his Reverence into harmony with his other powers."

Comparison thus takes the widest range of nature within its sphere. "It compares," says Mr Scott, "things of the most opposite kind, draws analogies, and discovers resemblances between them, often the most unexpected and surprising. It compares a light, seen afar off in a dark night, to a good deed shining in a naughty world; it compares the kingdom of heaven to a grain of mustard-seed. If we would describe more minutely and accurately," he continues, "what are the kinds of resemblances which this faculty discovers, it will perhaps be found that they are in no case *direct* resemblances, such as are perceived by the observing powers, but *relative* resemblances, or, to speak more accurately, resemblances not between the objects themselves, but *between their relations* to other objects. What resemblance is there, for instance, between a good action and the light of a candle? None whatever directly; but relatively there is felt to be a resemblance, when the light appears brighter because of the surrounding darkness, and when the good action is set off by the contrast afforded by the wickedness of the world."¹ It finds analogies between the qualities of matter and mind; and from these comparisons and analogies, a great part of language, expressive of the qualities of mind, is drawn; "a great part of it being almost metaphorical, and applied originally in its literal sense to designate qualities of matter." We speak of a *beautiful* sentiment, a *sparkling* thought, *profound* respect, *light* discourse, *burning* rage, a *solid* argument, *black* despair, a *cutting* reproach,

¹ Essay on the Faculty of Comparison; *Phren. Journ.*, vol. iv. p. 322.

a *heavy* accusation, a *brilliant* conception, an *entangled* proposition, a *soft* reply; a *hard* answer, a *biting* sarcasm. The language of every nation proves whether this organ is much or little developed in the greatest number of its individuals. If they have this faculty in a high degree, their language is replete with figure. Dr Murray Paterson mentions that the Hindostanee language abounds in figures, and that Comparison is larger than Causality in the heads of the Hindoos in general.¹

This faculty gives rise to proverbs, which convey instruction under figurative expressions.

It attaches us to comparison, without determining its kinds; for every one must choose his analogies according to his knowledge, or from the sphere of activity of his other faculties. He who has Locality in a high degree, derives thence his examples; while another, in whom Form predominates, will illustrate his subject from it. Dr Chalmers draws his illustrations from mechanics and astronomy; and the organs which take cognizance of these are large in his head.

According to Dr Spurzheim, Comparison takes cognizance not only of resemblances but also of differences. This view is opposed by Mr Scott, who attributes the perception of differences to the organ of Wit; an opinion in which he is supported by several metaphysicians before quoted.²

This faculty gives a tendency to what is frequently called reasoning, but which is very different from the correct and severe inductions of a sound logic; namely, it endeavours to prove that one thing is of such and such a nature, because it resembles another which is so and so—in short, it reasons by analogy, and is prone to convert an illustration into an argument. The published sermons of the late Mr Logan, minister of Leith, afford an example of the productions of this kind of intellect. He is always establishing a proposition, and, to those who do not analyze profoundly, he appears to be an argumentative preacher; but his argument is not

¹ *Trans. of the Phren. Soc.* p. 437.

² Vol. i. p. 493-4.

induction—it is a mere statement of analogies, closed by an inference that the case in point must be as he views it, otherwise it would be an exception to the ordinary arrangements of nature. Comparison enables the mathematician to perceive the truth of a proposition which is necessarily implied in another, which he knows to be demonstrable.

This faculty is more rarely deficient than any of the other intellectual powers, and the Scripture is addressed to it in an eminent degree, being replete with analogies and comparisons. From giving readiness in perceiving analogies and resemblances, it is one element in instantaneous acuteness. The organ is largely developed in a neighbouring nation; and it is correctly observed by an anonymous writer, that “ingenuity in discovering unexpected glimpses and superficial coincidences in the ordinary relations of life, the French possess in an eminent degree.”¹ In schools, the best scholars generally have much Language and Comparison. In children the organ of Comparison is usually well developed; and it is remarked by a practical writer, that “children come both to understand and to relish a figurative expression much sooner than we might naturally be led to imagine.”² “Children,” says Miss Edgeworth, “are all, more or less, pleased with the perception of resemblances and of analogy.”³ The faculty is of essential service to orators and popular preachers. It and Eventuality are the largest organs in the forehead of William Pitt. It is large also in the busts of Curran, Chalmers, Burke, and Jeffrey. In Mr T. Moore it is very large; and, in the eighth number of *The Westminster Review*, it was remarked, that there are two thousand five hundred similes in his Life of Sheridan, besides metaphors and allegorical expressions. Dr Gall correctly observes, that close reasoning and rigid induction are always disagreeable to a popular audience, because their faculties are not cultivated or exercised to follow abstract conceptions. The great charm

¹ *Edinburgh Review*, Nov. 1820, p. 389.

² Wood's *Account of the Edinburgh Sessional School*, 1828, p. 179.

³ *Practical Education*, vol. iii. p. 96.

of popular speakers, therefore, consists in perspicuity of statement, and copiousness of illustration.

From giving power of illustration and command of figures, this faculty is of great importance to the poet; and it aids Wit also, by suggesting analogies. By common observers, indeed, the metaphors, amplifications, allegories; and analogies, which Comparison supplies, are frequently mistaken for the products of Ideality, although they are very different. Ideality, being a sentiment, when greatly excited, infuses passion and enthusiasm into the mind, and prompts it to soar after the magnificent, the beautiful, and the sublime, as objects congenial to its constitution.¹ Comparison, on the other hand, being an intellectual power, produces no vivid passion, no intense feeling or enthusiasm; it coolly and calmly plays off its corruscations derived from the other powers with which it is combined. If united with great Individuality and Causality in any individual, the comparisons employed will be copious, ingenious, and appropriate; but if Ideality be not large, they will not be impassioned, elevated, and glowing. Add to Comparison a large Ideality, as in Dr Chalmers, and its similes will now twinkle in delicate loveliness like a star, now blaze in meridian splendour like the sun, while intense feeling and lofty enthusiasm will give strength and majesty to all its conceptions.

The organ of Comparison is large in Franklin, Roscoe, Edwards, Henri Quatre, Mr Hume, and the Hindoos; and deficient in Haydon the painter, and in the Caribs.

Till recently the function of this organ has been considered as limited to a perception of general resemblance between

¹ It is under the influence of Ideality, that

“ The poet’s eye, in a fine frenzy rolling,
Doth glance from heaven to earth, from earth to heaven;
And as imagination bodies forth
The forms of things unknown, the poet’s pen
Turns them to shapes, and gives to airy nothing
A local habitation and a name.”

ideas compared ; but a new view has been suggested by my ingenious friend Mr Hewett Watson. He conceives that its simple function probably is “a *perception of conditions* ;” and he proposes the term *Conditionality* as its name. It is admitted, says he, that the faculty of Form compares forms, Tune compares notes, and Colouring compares colours. In these faculties, comparison is a *mode of activity* only ; and it is contrary to all analogy to assign comparison to another organ as its primitive function. The organ XXXIV, therefore, will probably originate some specific perceptions distinct in kind from those of any other organ ; and its comparisons will be made between *its own* perceptions only, as is the case with every other intellectual faculty. A few illustrations will render these ideas more clear.

When we utter the word *man*, we address Individuality alone ; we speak of a being which exists, without specifying his form, size, colour, or weight ; without mentioning his actions ; and without intimating his condition. When we say “the man walks,” we add a new idea, that of walking : In this proposition we call in the aid of Eventuality, which conceives action or events. If we say “the *tall man* walks,” we address Size, Individuality, and Eventuality ; or if we say “the *black man* rides,” then Colouring, Individuality, and Eventuality, combine in uttering and in understanding the proposition. But, suppose that we are told that the “*miserable man* runs along the road ;” here we have, first, the man—second, his condition, *miserable*,—and, third, his action, *running* : now, what organ takes cognizance of his *condition* ? It is obvious that it must be an organ distinct from the other two, because the mind can conceive the man without his action ; it can conceive the man and his action without thinking of his condition, and his condition without adverting to his action : his condition is therefore a third and separate consideration, introduced as an article of additional information. Again, suppose that we are told that Mr A. and Miss B. were married last week at the altar of their parish-church : the information would be communicated by

and addressed to the organ of Individuality, which takes cognizance of Mr A. and Miss B. as individuals, and the altar and church as things which exist; Locality would give us the notion of the place of the marriage, and Time of the date of it; but in all this, no information would be acquired of the *condition* of the parties. Now, suppose that we should meet them coming from the church, and should wish them "much happiness" in their "*new condition*," it is evident that some conceptions different from the former are added. We now contemplate them in the "married condition," and we express our wish, that they may live happily in that state.

Mr Watson's idea is, that the primitive function of Comparison is to take cognizance of the condition (as alive, dead, warm, cold, healthy, or sick) in which beings and inanimate objects exist; and that it compares the conditions, just as Colouring compares colours, and Tune compares notes. Of all the means of creating interest or affording illustration, the specification of the condition of objects or beings is the most effectual. Thus, *the man exists*, is announced by Individuality, and produces little interest; the *man dies*, is announced by Individuality and Eventuality, and is more affecting; but the "*good and just young man dies*," stirs up a far deeper emotion; and it is the addition of his qualities and condition, "good, just, and young," that makes the difference. Poets and orators, therefore, in whom this faculty is strong, will possess vivid perceptions of the condition or state of objects and beings; and if every faculty compares its own objects, this will compare conditions. If Mr Watson's view be correct, we should find authors in whom Individuality predominates, illustrating their subject chiefly by comparing simple individual objects; those in whom Eventuality predominates, illustrating by comparing actions; and those in whom the organ now under discussion predominates, illustrating by comparing conditions or states; and such accordingly appears to be actually the case. The following illustrations are furnished chiefly by Eventuality.

"When Ajax strives some rock's huge weight to throw,
The line, too, labours, and the words move slow ;
Not so when swift Camilla scours the plain,
Flies o'er the unbending corn, and skims along the main."

Pope.

Mr Watson observes, that, in Sheridan, Individuality and Eventuality are large, and Comparison only full ; and the example already given on page 97, from his works, corresponds with this development.

In Moore, Individuality is large, Eventuality deficient, and Comparison very large ; and his descriptions are confined so much to conditions, that any artist who should attempt to transfer one of his beauties to canvass, would find it necessary to invent every item of form, proportion, colour, and indeed every thing except condition. "The harp that once through Tara's halls" is a good example of this ; the whole piece being but a description and comparison of conditions. In another short poem, "Though Fate, my girl, may bid us part," the same occurs ; and the following is another example :—

"When I remember all
The friends so linked together,
I've seen around me fall
Like leaves in wintry weather ;
I feel like one who treads alone
Some banquet-hall deserted ;
Whose lights are fled, whose garlands dead ;
And all but he departed."

It is quite obvious, that condition is the prominent feature—indeed, almost the whole physiognomy—of these lines.

In the busts of Pope, Individuality is moderately developed, Eventuality very large, and Comparison considerable. "The styles of Pope and Moore," says Mr Watson, "seem to be quite contrasted in this respect,—that Pope narrates all the circumstances of his stories in succession, as they may be supposed to occur. Moore, on the other hand, gives us a series of highly finished pictures describing clearly and beautifully the *state* of the earth, atmosphere, sky,

clouds, and *dramatis personæ*, for the time being, but by no means with that regular sequence of occurrences which is to be found in Pope. His stories are the whole routine of real life ; those of Moore stage-representations, where a good deal is done behind the scenes, and only the most effective parts brought into view. Pope writes historical documents with the minute accuracy and detail of a Welsh pedigree ; Moore's pen is like the pencil of an artist, and creates a gallery of paintings, where we see the same persons in different situations at different periods, but with no more information of what becomes of them in the interim, than we can obtain concerning the noon-day dwelling of *Oberon* or the *Ghost of Royal Hamlet*. Their styles being thus different, we should expect their similes to exhibit a corresponding diversity, if there be really no special organ of Comparison : those of Pope should be less strongly characterized by resemblance of condition, and shew a greater and more proportional variety in the points of similitude ; the comparisons should be more diversified, and the resemblances more comprehensive." ¹

I communicated Mr Watson's ideas to Dr Spurzheim, before they were published in *The Phrenological Journal* ; and he favoured me with the following remarks, in a letter, dated Dublin, 16th May 1830 :—" My description of Comparison involves the essence of Mr Watson's ideas. Among your examples, *young* horse belongs to it, but not *lively* horse. The horse being *lively*, is known by Eventuality, in the same way as motion in general. The *generality* of attributes and all abstract ideas and general notions are conceived by Comparison. *Condition* indicates not only state, but also cause ; and if *Comparison* shall be replaced by another term, it cannot be *Conditionality*. Abstraction or generalization should be preferable. *Vergleichender Scharfsinn* is very significant : It compares, discriminates, separates, abstracts, adapts, and generalizes. The philosophers styled *Nominalists* had it in an eminent degree, whilst Individu-

¹ *Phrenological Journal*, vol. vi., p. 389.

ality was predominant in the *Realists*. Comparison compares conditions or states, and conditions or causes. Its essential result is generalization and discrimination."

In the last edition of his *Phrenology*, Dr S. adverts to Mr Watson's view in the following terms: "I am delighted to know that this gentleman is engaged in the pursuit of Phrenology; he is destined to render great service to its cause, but my Comparison makes me differ from him as to the essential function of this faculty. In my opinion, the cognizance of different conditions is tested by Eventuality. This faculty not only shews the active, but also the passive and neutral verbs. It perceives a man walking, but also a man being carried, a man asleep, two persons being married. To be young or old, good, just, or the contrary, are physical or moral events, which are made known to Eventuality. Hence there is no necessity of a new organ of Conditionality."

Mr Watson's latest remarks on Comparison are contained in the tenth volume of *The Phrenological Journal*. "By comparing," says he, "the developments of several authors and private acquaintances with their styles of writing and thinking, I came to the conclusion that *comparison* was only a mental process, and ought to be classed with perception, conception, memory, imagination, and other terms which appear to express a state of functional activity, not the kind of ideas formed in the cerebral organs. This conclusion was forced upon me by finding that the tendency to compare was not always in proportion to the development of the organ named Comparison, and that the sense of resemblance and difference, like that of memory, was always manifested most strongly in the ideas presumed to be formed by the largest organs. The next step was to ascertain the *kind of ideas* existing or formed in the organ hitherto called Comparison. On carefully examining the works of authors in whom this organ was predominant, I believed to have detected a peculiar tendency to describe and to compare certain trains of ideas, touching the condition or states of external nature and

internal feelings ; while the works of others, in whom this organ was moderately developed, were comparatively devoid of such tendency, but were prone to describe and compare other trains of ideas. Hence came the suggestion of this organ taking cognizance of such ideas, and remembering and comparing those ideas, just as Form is said to remember and compare shapes. Although the works of Spurzheim do not give this view, his own ideas about the function of the organ seem to have approximated to it, because, in reply to Mr Combe's epistolary intimation of my conclusions, he wrote, ' Comparison compares conditions or states, and conditions or causes. Its essential result is generalization and discrimination.' Mr Hancock says that my term ' conditions ' does not convey to his mind any very distinct ideas. The fault may be personal, not verbal, as it appears that Spurzheim distinctly comprehended the ideas that it should excite. I differ from Spurzheim and Mr Scott in still thinking that each organ (or pair of organs) generalizes and discriminates its own ideas only. The heads of several persons eminent in the physical sciences evince only a moderate development of Comparison, yet these sciences require generalization and discrimination to a great extent. Half the science of Botany, and almost the whole of Entomology, turn on discriminations of objects nearly alike, or in uniting them into general groups in accordance with certain resemblances in their physical properties. Why, therefore, is the organ of Comparison not always large in eminent botanists and entomologists, if this organ be necessary to generalization and discrimination of all kinds of ideas alike ? Again, if Comparison ' compares conditions or states,' what organ perceives and remembers them ?"¹

The views of Dr Vimont on this subject are identical with those of Mr Watson ; he names the faculty "*Comparaison ou appréciation de l'état des choses*," and illustrates its nature thus :—When a piece of ice is placed in a vessel over the fire, Form, Size, and Colouring, take cognizance of its ap-

¹ *Phrenological Journal*, vol. x. p. 169.

pearance ; and, when it melts, the change is perceived by Eventuality. All these perceptions may take place without any idea arising, of a relation between the state of the now liquid substance, and the same state in other substances, such as lead, mercury, or milk. What then, says he, is the faculty which recognises that state of one body relatively to another, so as to make known its qualities expressed by the adjective in language ? Doubtless, he answers, Comparison ; or, as he prefers to name it, “ l’appréciation de l’état des corps, mais avec l’idée de rapprochement ou de relation.”¹ He alludes to Mr Watson’s essay in *The Phrenological Journal*, and adds the remark (ill-founded, as it appears to me), that “ although the arguments of that phrenologist are very ingenious, his theory seems to be at bottom nothing but the idea of comparison, in the sense in which the word is used by Gall.”

I have seen several cases which seem to support Mr Watson’s view that Comparison gives a special tendency to the mind to take cognizance of conditions. I know a physician in whom it is very large, combined with Individuality small, and Causality only full, and he manifests an extraordinary tendency to investigate the *condition* of every important organ and function in his patients. I have observed other physicians in whom Comparison was small, content themselves with vague and general enquiries, and confine their attention to prominent symptoms, although in them the organs of Individuality and Causality were more amply developed.

It is not yet determined whether this organ is possessed by the lower animals. Dr Gall says that man alone is endowed with it ; but Dr Vimont has been led, by studying the actions of certain animals, such as the dog, elephant, orang-outang, and bear, to consider these creatures as not destitute of the faculty.

The essential functions of the organ are regarded as ascertained.

¹ *Traité de Phrénologie*, tome ii. p. 382.

35.—CAUSALITY.

It has long been a matter of general observation, that men possessing a profound and comprehensive intellect, such as Socrates, Bacon, and Galileo, have the upper part of the forehead greatly developed. At Vienna Dr Gall remarked, that in the most zealous disciples of Kant, men distinguished for profound, penetrating, metaphysical talent, the parts of the brain lying immediately at the sides of the organ of Comparison were distinctly enlarged. He and Dr Spurzheim subsequently saw a mask of Kant himself, moulded after death, and perceived an extraordinary projection of these parts. At a later period, they became personally acquainted with Fichte, and found in him a development of that region still larger than in Kant. Innumerable additional observations satisfied them concerning the function of this organ; Dr Gall named it "*Esprit métaphysique, Profondeur d'esprit*," and Dr Spurzheim "Causality." This organ and Comparison are large in Melancthon, vol. i. p. 141, Tasso, p. 453, Chaucer and Locke, p. 477, and Michael Angelo, vol. ii. p. 29; small in idiot, vol. i. p. 45, New Hollander, p. 57, and Griffiths, p. 382.

Dr Thomas Brown says: "A cause, in the fullest definition which it philosophically admits, may be said to be *that which immediately precedes any change, and which, existing at any time in similar circumstances, has been always, and will be always, immediately followed by a similar change*. Priority, in the sequence observed, and invariableness of antecedence in the past and future sequences supposed, are the elements, and the only elements, combined in the notion of a cause." This is a definition by means of Individuality and Eventuality, of the function of Causality, but it is not complete. When we treat of a primitive power of the mind, all that we can do is to describe it, to state the objects to which it is related, and to give it a name. We cannot, by means of a definition, enable a person who never experienced its

activity, to understand what it is. The definition of Dr Brown describes, with sufficient accuracy, the circumstances in which the perception of causation is excited ; but it does not convey any notion of the primitive mental faculty by which the perception is accomplished. In addition to the invariable sequence which Eventuality perceives, a notion of power or efficiency in the antecedent to produce the consequent, appears to me to arise in the mind, when contemplating instances of causation ; and this notion is formed and manifested by means of the organ of Causality.

We have no notion of substance, except as it is unfolded to us in its qualities, yet we have a firm conviction that substance exists. We see only sequence in causation ; yet we have an irresistible conviction that efficiency exists in the antecedent to produce the consequent. Individuality gives the first, and Causality the second conviction, and both give belief in the *existence* of something, the essential nature of which is *unknown*.

It is said, that it is only by experience, or by observing the invariableness of the sequence, that we discover the connexion of cause and effect ; and this is true : but in this respect Causality does not differ from the other faculties. Caloric, as existing in nature, is one thing, and the sensation of heat produced by it in the human body, is another. Before the mind can experience the sensation, heat must be applied to the nerves ; but even after the sensation has been felt, the mind knows nothing about what caloric is in itself, or *how* it comes to have the quality of causing the sensation. All that the mind discovers is, that caloric, be it what it may, exists ; and that it is capable of producing certain effects on matter, and of exciting in the living body that peculiar feeling which we name heat or warmth. The same holds in regard to Causality. Before the mind can know the existence of a cause, it must manifest itself by producing an effect. The application of caloric to the nerves produces the feeling of heat ; and the presentment of an instance of causation excites in Causality the notion that a cause exists.

Suppose a bent bow, with an arrow drawn to the head, but retained in this position, to be presented, it is said that Causality, prior to experience, could never discover that, on the restraining power being withdrawn, the bow would expand and propel the arrow; and this is quite correct; because a bow in this condition is an object which excites only the faculties of Form, Size, Colouring, and Individuality. It is an object of still life, of simple existence; when it expands, and the arrow starts from the string, it becomes an object of Eventuality, which perceives the motion; but, in addition to the perception of the bow and the motion, an impression is generated, that the expansion was the cause of the arrow's motion; and this impression arises through the medium of Causality. The most illiterate savage would repeat the operation in the confidence that the effect would follow. A monkey, however, although it might find the arrow very useful in knocking down fruit which it could not reach with its hands, would not repeat the operation although presented with the bow and arrow. It possesses hands and arms quite adapted to draw the string; but having no organ of Causality, it does not conceive the notion of causation: it sees the phenomena succeed each other, without any idea of efficiency being excited.¹

¹ Beavers and others of the lower animals appear, at first sight, to have some degree of Causality. Beavers adapt the structure of their dam with surprising sagacity to the pressure of the water; and in preparing it, they not only cut trees in such a way as to ensure their falling into the water, and not on dry land, but select trees so situated, that when they do fall, the stream shall carry them to the spot where they wish them to be placed. There appears to be a knowledge of cause and effect in these operations; and yet the beaver cannot apply this knowledge out of its own department. I am inclined, therefore, to give a different explanation. It is probable that each knowing faculty is adapted to the natural laws of its objects; the organ of Tune is fitted not only to feel in accordance with the laws of harmony, but instinctively to seek to obey them in producing music; it desires melody, and melody cannot be produced except in conformity with these laws: it therefore tries, and tries again, until at last it succeeds in producing sounds agreeable to itself, and, just because its constitution and the laws of harmony are in accordance, it at last fulfils these laws by instinctive impulse, without knowing them as subjects of reflection.

Individuality and Eventuality take cognizance of things obvious to the senses. Causality looks a little farther than

tion. It is probable that the organs of Constructiveness and Weight in the beaver, are in like manner adapted to the laws of gravitation and motion, and that it instinctively obeys them without knowing any thing reflectively of the laws themselves. This would account for its powers being perfect, yet limited in their sphere. Constructiveness and Weight in man also may be adapted to these laws, but, by the addition of Causality, he may become acquainted with natural powers as general agents, and capable of tracing their general application. Thus, a beaver, an elephant, and a savage, may, by the mere instinct of Weight and Momentum, roll or pull a heavy body, which they cannot lift, up an inclined plane, without knowing any thing of the causes why they succeed in raising it in this way; but a philosopher, with great Causality, may recognise the existence of the cause, ascertain the laws of its operation, and then apply his discovery to a variety of purposes. This would account for philosophers often excelling in particular branches of science, who are moderately endowed with Causality—Newton, for example, in mathematics and dynamics; while no man is ever observed to be eminent for his talent of applying causation generally, who has a deficiency of that kind. Some philosophers, however, believe that the lower animals possess some degree of causality. Beavers modify their structures to adapt them to new circumstances, and I have seen a monkey run in terror when a gun was presented towards it,—indicating that, from having seen it fired, it knew it to be a destructive engine. These effects might result from a very low degree of Causality, sufficient to give perception of causation, but not enough to lead to the active employment of causes to accomplish ends; and in this case the remark in the text would be too broad. Dr Vimont says: "I am much inclined to believe that the faculty of Causality exists in certain animals, such as the elephant, the orang-outang, and the dog; though in a degree so inferior, that they cannot in this respect be compared with man. I believe that it is to the considerable endowment of this faculty in the latter, that we ought chiefly to ascribe the immense distance which exists between him and the brutes." Dr Elliotson observes: "I see daily instances of something deserving some such name as judgment or reason in brutes. To the incredulous I offer the following anecdote in the words of Dr Darwin. 'A wasp on a gravel walk had caught a fly nearly as large as itself. Kneeling on the ground, I observed him separate the tail and the head from the body part to which the wings were attached. He then took the body part in his paws, and rose about two feet from the ground with it; but a gentle breeze wafting the wings of the fly turned him round in the air, and he settled again with his prey upon the gravel. I then distinctly observed him cut off with his mouth first one of the wings and then the other, after which he flew away with

these, perceives the dependencies of phenomena, and furnishes the idea of causation, as implying efficiency, or something more than mere juxtaposition or sequence. It impresses us with an irresistible conviction, that every phenomenon or change in nature is caused by something, and hence, by successive steps, leads us to the great Cause of all. In looking at the actions of men, it inclines us to consider the motives, or moving causes, from which they proceed. Individuality and Eventuality apprehend facts and events, or take cognizance of direct evidence; Causality judges of circumstantial evidence, or that by inference. In a trial, a jurymen, with large Individuality and Eventuality, and small Causality, will have great difficulty in convicting on circumstantial evidence. He in whom Causality is large will often feel that kind of proof to be irresistible. This faculty induces us on all occasions to ask, Why is this so? It gives deep penetration, and the perception of logical consequence in argument. It is large in persons who possess a natural genius for metaphysics, political economy, or similar sciences. When greatly larger than Individuality, Eventuality, and Comparison, it tends to vague generalities of speculation, altogether inapplicable to the affairs of life; and hence those in whom it predominates are not calculated to shine in general society. Their sphere of thought is too abstract to be reached by ordinary minds: they feel this, and remain silent; and hence are reputed dull, heavy, and even stupid.

A great defect of the organ renders the intellect superficial; and unfits the individual for forming comprehensive and consecutive views, either in abstract science or in business. Coincidence only, and not causation, in events is then

it unmolested with the wind.' *Zoonomia*: Instinct. The works of the two Hubers *Sur les mœurs des fourmis indigènes*, furnish an abundance of most interesting instances of reason in those insects. See also Mr Smellie's paper in the *Transact. of Royal Society of Edinburgh*, vol. i. p. 89, sqq.—(Elliotson's *Blumenbach*, 4th ed. p. 543). An additional instance will be found in *The Phrenological Journal*, vol. viii. p. 73.

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perceived.¹ Persons in whom it is deficient are often admirably fitted for common situations, or for executing plans devised by profounder intellects ; but, if they are entrusted with the duties of legislators, or become directors in any public affair embracing causation, it is difficult to make them comprehend the natural dependencies of things, and to act according to them. Blind to causes and to remote consequences, they stigmatize as visionary all intellectual perceptions which their own minds cannot reach ; they reject principle as vain theory, are captivated by expedients, and represent these as the *beau ideal* of practical wisdom.

Dr Spurzheim observes, that “the faculty of Individuality makes us acquainted with objects, that of Eventuality with events ; Comparison points out their identity, analogy, or difference, and finds out their harmony ; finally, Causality desires to know the causes of all occurrences. Consequently, these faculties together, pointing out general principles and laws, and drawing conclusions, inductions, or corollaries, constitute the truly philosophic understanding.”

It is interesting to trace the effects of this faculty, strong or weak, in the mental character, as it exhibits itself in the occurrences of life. In a visit to a great public work, I accompanied two gentlemen, in one of whom Individuality was large

¹ The following amusing and instructive observations occur in the *Phrenological Journal*, vol. xii. p. 293. “*Specimen of Irish Causation.*” —“In a history of Ireland, published about a century ago, the author accounts for the death of an Irish monarch by the following satisfactory explanation :—‘He lived to a very advanced age, until death put an end to his life.’ It would be interesting to know by what mental process the effect was made to stand for the cause of itself, in the historian’s notions. We have noticed this style of expression to be habitual with many persons in whom the organs of Individuality are large, and the upper part of the forehead deficient in proportion to the lower. It seems that, in persons whose heads are thus formed, every noun is taken as the name of some supposed being, having a real and individual existence ; and in this way, words truly indicating only changes or states of being, come to be regarded as agents capable of performing actions. According to our observations, blunders of this kind are rarely made, but often detected in others, by persons in whose heads the organs called Wit are largely developed.”

and Causality small, and in the other of whom the proportions of these organs were reversed. The former, in surveying the different objects and operations, put question after question to the workmen, in rapid and long-continued succession; and nearly all the information which he carried away with him was acquired in answer to specific interrogatories. His mind scarcely supplied a step by its own reflection; and did not appear to survey the operations as a systematic whole. The latter individual looked a long time in silence before he put a question at all; and when he did ask one, it was, What is the use of that? The answer enabled his own mind to supply a multitude of additional ideas; he proceeded in his examination, and it was only on arriving at another incomprehensible part of the apparatus, that he again inquired. When he had surveyed the whole, he turned back, and, with the most apparent satisfaction, contemplated in silence the operations from beginning to end, as an entire system. I heard him afterwards describe what he had seen, and discovered that he had carried off a distinct comprehension of the principles and objects of the work. It is probable that a superficial observer would have regarded the first as the acute, intelligent, and observing man of genius—the person who noticed every thing, and asked about every thing; and the latter as a dull uninteresting man, who put only two or three questions, looked heavily, and said nothing.

A gentleman in a boat was unexpectedly desired to steer. He took hold of the helm, hesitated a moment what to do, and then steered with just effect. Being asked why he hesitated, he replied, “I was unacquainted with steering, and required to think how the helm acts.” He was requested to explain how thinking led him to the point, and replied, That he knew, from study, the *theory* of the helm’s action; that he just ran over in his mind the water’s action upon it, and its action on the boat, and then he saw the whole plainly before him. He had a full Causality, and not much Individuality. A person with great Individuality and Eventuality,

and little Causality, placed in a similar situation, would have *tried the experiment* of the helm's action, to come to a knowledge of the mode of steering: he would have turned it to the right hand and to the left, *observed* the effect, and then acted accordingly; and he might have steered during his whole subsequent life, without knowing anything more about the matter.

A question arose in an evening party concerning the cause of the harvest moon. In one gentleman present, Individuality and Eventuality predominated: in another, Causality was the larger intellectual organ. In an instant the former said that the long continuance of moon-light at that season was owing to the moon's advancing north to the tropic of Cancer at the time of her being full. The latter paused for a little, and added, "Yes, Sir, you are quite right." Observing the difference in their heads, and perceiving by their manner that they had arrived at the result by different mental processes, I asked them to explain how they knew this to be the cause. The first said, "Oh! I recollect Professor Playfair stated it in his lectures to be so." The other replied, "I had forgotten the precise fact, but I recollected the principle on which the Professor mentioned it to depend, and by a moment's reflection I followed it out, and arrived at the conclusion which this gentleman has just announced." "I am not sure," said the former, "that I could now master the principle, but of the result I am quite certain; because I distinctly recollect of its being stated by Mr Playfair." This is a striking example of the mode of action of these different faculties. Individuality knows only facts, and Eventuality events; while Causality alone takes cognizance of principles.

Causality is the fountain of resources. Place an individual, in whom it is small, in new circumstances, and he will be helpless and bewildered; place another, in whom it is large, in a similar situation, and he will shew his superiority by the extent of his inventions. A mechanic, with little Causality, will be at a stand if his ordinary tools are wanting, or if employed out of his ordinary line; another, having

this faculty powerful, will find a thousand substitutes. If a person deficient in Causality be placed in charge of any establishment, comprehending a variety of duties which arise the one out of the other, and all of which cannot be anticipated and specified *a priori*, he will be prone to neglect part of what he ought to attend to. He will probably plead forgetfulness as his excuse; but want of comprehensiveness and consecutiveness of thinking will be the real cause of his imperfections.

If a person possessing little Causality write a book, he may shine in narrative, provided Individuality, Eventuality, and Language be amply developed; but when he endeavours to reason, he will become feeble and confused. One endowed with much Causality, in reading a work written by an author in whom this organ is deficient, feels it characterized by lightness and want of depth; it furnishes him with no stimulus to thinking. When, on the other hand, a person possessing only a small Causality, peruses a book composed by an author in whom this organ predominates, such as Locke's *Essays*, or Brown's *Lectures*, he regards it as heavy, abstract, and dry, and is oppressed by it as if a night-mare were weighing on his mind.

Among metaphysicians, Hume, Dr Adam Smith, and Dr Thomas Brown display great Causality, Dr Reid not so much, and Mr Stewart still less. In the portraits of the first three the organ is represented as decidedly large. It is large also in Bacon, Franklin, and Playfair; and likewise in the masks of Haydon, Burke, Brunel, Wordsworth, and Wilkie. It is moderate in Pitt and Sir J. E. Smith; and very deficient in the skulls of the Caribs and New Hollanders. An anonymous writer observes, that, "of whatever has been said and written upon the moral and political sciences in France, the general characteristic is a deficiency in extensive views of human nature, in profound investigation of the heart, portrayed in all its strongest feelings and multitudinous bearings."¹ Without subscribing to the accuracy of

¹ *Edinburgh Review*, Nov. 1820, p. 389.

this observation in its full extent, the fact may be mentioned as certain, that, in the French head in general, the organ of Causality is by no means largely developed.

"It is remarkable," says Dr Spurzheim, "that the ancient artists should always have given to their busts of philosophers a large forehead, and represented Jupiter Capitolinus with a forehead in the middle part more prominent than is ever seen in nature; they seem to have observed that development of the forehead has a relation to great understanding. It is farther remarkable, than this larger development does not extend to the lateral upper portion of the forehead. The organ of Mirthfulness, which the Edinburgh phrenologists are inclined to consider as that of perceiving differences, is small in the busts of Demosthenes, Cicero, and other great men; it is particularly defective in Jupiter. In this respect, therefore, the observations of the ancient artists coincide with mine, to prove that the organ of Mirthfulness is not necessary to a philosophical mind."¹ The bust of Socrates (of which the Phrenological Society possesses a copy) shews a very large development of the reflecting organs. Either it is a correct representation of his real appearance, and thus presents an interesting coincidence between his character and development; or it is imaginary, and, in that case, shews the impression of the ancient artist, that the mind of Socrates required such a tenement for its abode.

As already mentioned, when the organ now under consideration is very deficient, the individual has great difficulty in perceiving causation; and when two events are presented to him the one following the other, he sees only *coincidence*. Illustrations of this remark frequently occur in discussions relative to Phrenology. When Causality is well developed in an observer, and several decided instances of concomitance between particular forms of head and particular powers of mind are presented to him, the feeling of connexion between them is irresistible; he is struck with it, and declares that there is something here which ought to be followed out.

¹ *Phrenology*, last edition, Boston, U. S. 1832, p. 356.

When the same facts are exhibited to a person in whom Causality is deficient, he smiles surprisedly, and ejaculates, "A curious coincidence!" but his mind receives no strong impression of connexion between the phenomena; he feels no desire to follow out the ideas to their consequences, and has no wish to prosecute the investigation. It was from this class of minds, ever ready to catch superficial glimpses, that the public received the first accounts of Phrenology; and on them are chargeable the misrepresentations which so long impeded its course.

In *The Phrenological Journal*, vol. xi., p. 326, a case is reported by Mr James Smellie of Glasgow, in which an operative engineer, in consequence of a fracture of the skull affecting the organs of Causality and Ideality on the right side, became "incapable of understanding or of uttering any thing farther than the most simple idea." Although he was able "to go to a friend's house, about a mile distant, in the evenings, and join in the exercise of vocal music, yet he was unfit to give any lengthened account of himself, or tell any story which could be understood." "Still he was sometimes in good spirits, and laughed, and tried to joke with his friends."

This faculty is an ingredient in the Judgment of the metaphysicians. As there are individuals so deficient in the organ of Tune, as to be incapable of perceiving melody, so there are some in whom Causality is so defective that they are incapable of perceiving causation, except of the most obvious kind. If such persons are not aware of their own deficiency, and have much Self-Esteem and Firmness, they are often intolerable dogmatists, as they hold fast by all notions which they have adopted, from whatever source they may have been derived, and shew an utter incapacity for reasoning. There are others in whom the organ is large enough to render them capable of apprehending an exposition of causation, when clearly unfolded to them; but in whom it is still so moderate that they cannot reproduce the steps of the argument by which they were convinced. Such men

often possess sound opinions on abstract subjects, without being able to assign sufficient reasons for them.

Causality is also, to a certain extent, the fountain of abstract ideas, namely, those of the relation of cause and effect; and bears, in this respect, an analogy to the power named abstraction by the old philosophers. It and Comparison correspond to the Relative Suggestion of Dr Thomas Brown; "a tendency of the mind," as he explains it, "by which, on perceiving or conceiving objects together, we are instantly impressed with certain feelings of their mutual relation."¹ By dispensing with Perception, Conception, &c., as separate faculties of the mind, and dividing the intellect into the two faculties of Simple Suggestion and Relative Suggestion, Dr Brown has made an interesting approach to the results of phrenological discovery, and to a correct analysis of the actual constitution of the human intellect. It was impossible, by means of the old faculties of Conception, &c., to point out the characteristics of a mind which collected only facts in the order in which they were presented to it; and of another, which struck out a multitude of new ideas from every object which it contemplated, and instinctively inquired from what causes all phenomena proceeded, and to what results they tended. Dr Brown's Simple Suggestion denotes the one tendency, and his Relative Suggestion the other; and, in Phrenology, the perceptive faculties correspond pretty closely to the former, and the Reflective powers to the latter.

We are now prepared to consider some points which have occasioned great and animated discussions among the metaphysical writers of the old schools. It has been stated, that Individuality takes cognizance of objects that exist. A tree, a ship, a mountain, are presented to the mind, and ideas or conceptions of them are formed; and the conception is followed by an intuitive belief in their existence. Bishop Berkeley objects to the belief in their existence as unphilosophical; because, says he, the conception or idea is a mere mental affection, and no reason can be assigned, why an ex-

¹ *Lectures*, vol. iii. p. 14.

ternal object must be believed to exist, merely because we experience a mental affection. A smell, for example, is nothing more than a certain impression on the mind, communicated through the olfactory nerves. But no necessary connexion can be perceived between this affection and belief in the existence of a rose : the mind may undergo the affection called a smell, just as it experiences the emotion called joy, and a material object may have as little to do in causing the one as the other. Hence Dr Berkeley concluded, that we have philosophical evidence for the existence only of mind and mental affections, and none for the existence of the material world. Hume carried this argument farther, and maintained, that, as we are conscious only of ideas, and as the existence of ideas does not necessarily imply the existence of mind, we have philosophical evidence for the existence of ideas only, and none for that of either matter or mind. Dr Reid answered Berkeley's objection by observing, that the belief in external objects, consequent on perceiving them, is intuitive, and hence requires no reason for its support.

Phrenology enables us to refer these different speculations to their sources in the different faculties. Individuality (aided by the other perceptive faculties), in virtue of its constitution, perceives external objects, and its action is accompanied by intuitive belief in their existence. But Berkeley employed the faculty of Causality to discover *why* it is that this perception is followed by belief ; and because Causality could give no account of the matter, and could see no necessary connexion between the mental affection called perception, and the existence of external nature, he denied that that nature exists. Dr Reid's answer, translated into phrenological language, was simply this :—The cognizance of the existence of the outward world belongs to Individuality : Individuality has received its own constitution, and its own functions, and cannot legitimately be called on to explain or account for these to Causality. In virtue of its constitution, it perceives the existence of external objects, and belief in that existence follows ; and if Causality cannot see *how* this

happens, it is a proof that Causality's powers are limited, but not that Individuality is deceitful in its indications.

Another class of philosophers, by an error springing from an analogous source, have denied causation. When Eventuality contemplates circumstances connected by the relation of cause and effect, it perceives only one event following another, in immediate and invariable sequence. For example, if a cannon be fired, and the shot knock down a wall, Individuality and some other perceptive faculties observe only the existence of the powder. Eventuality perceives the fire applied to it, the explosion, and the fall of the building, as events following in succession; but it forms no idea of power in the gunpowder, when ignited, to produce the effect. When Causality, on the other hand, is joined with Eventuality in contemplating these phenomena, the impression of *power* or *efficiency* in the exploding gunpowder to produce the effect, arises spontaneously in the mind, and Causality produces an intuitive belief in the existence of this efficiency, just because it is its constitution to do so; and it is as absurd for Eventuality to deny the existence of some quality in the powder which gives rise to this feeling, because only Causality perceives it, as for Causality to deny the existence of the external world, because only the knowing faculties perceive it.

A practical application of much importance follows from these doctrines.

Some men deny the existence of God; and others strenuously maintain, that his existence is demonstrable by a legitimate exercise of reason. The former, who deny God, say, that all we perceive in nature is existence and the *succession* of phenomena; that we can form no idea of efficiency or power; and that, therefore, all we know philosophically is, that matter exists, and undergoes certain changes. This is the natural conclusion of men in whose heads Individuality and Eventuality are large, and Causality small; and, accordingly, atheists are generally very deficient in the organ of Causality, and shew its weakness in their general arguments on other topics. If, on the other hand, a mind in which Causality is very powerful, surveys the phenomena

of nature, the conviction of a Cause of them arises irresistibly and intuitively from the mere exercise of the faculty. Benevolence and design in the arrangements of the moral and physical world are clearly perceived by it; and it therefore instinctively infers, that benignity and intelligence are attributes of the cause which produced them. Hence the fact is phrenologically explained, why all master spirits are believers in God. Socrates, Plato, and the ancient philosophers, are represented as endowed with large organs of Causality; and they all admitted a Deity. Voltaire had too large a Causality to doubt of the existence of God; and Franklin continued to reverence the Supreme Being, although he had renounced Christianity.

To some who, perhaps for the sake of argument, have seemed inclined to deny the existence of a Deity, I have made the following appeal, without receiving any satisfactory answer:—A tree with roots exists; the earth exists; and there is an exquisite adaptation of the one to the other. The adaptation is not a quality of the tree, nor of the earth; but a relation between them. It has no physical existence, but is clearly apprehended by mind. Adaptation and its design being obvious, an intelligent mind must have contrived it; and this mind we call the Deity. Causality perceives the adaptation.

Another argument resorted to by atheists finds an answer in the principles now explained. They object that we have no evidence, from reason, of the *self-existence* of God; and affirm, that, for any thing we know to the contrary, the Maker of the world may himself own a superior, and have been created. Their objection is stated in this form: "You who believe in God infer his existence from seeing his works, on the principle that every effect must have a cause. But," say they, "this Being himself *is an effect*. You have no evidence from reason of his *self-existence* or *self-creation*; and, as he does exist, you must assign a *cause of him*, on the same principle that you regard him as the cause of the material creation." The atheists carry this argument the

length of a denial of God altogether, in respect that it is only the *first cause* that, according to them, can legitimately be regarded as Deity ; and the first cause, say they, is to us unknown.

This speculation may be answered as follows :—The knowing faculties *perceive objects directly*, and Causality *infers* qualities from manifestations. To be able to judge thoroughly of any object, the *whole* of these faculties must be employed on it. When a watch, for example, is presented to us, the knowing faculties perceive its spring, lever, and wheels, and Causality discerns their object or design. If the question is put, Whence did the watch proceed ?—from the nature of its materials, as perceived by the knowing faculties, Causality infers that it could not make itself ; and from discovering intelligence and design in the adaptation of its parts, this faculty concludes, that its cause must have possessed these qualities, and therefore assigns its production to an intelligent artificer. Suppose the statement to be next made—“ This artificer himself is an existence, and every existence must have a cause ; who, then, made the watchmaker ? ” In this case, if no farther information were presented to Causality than what it could obtain by contemplating the structure of the watch, the answer would necessarily be, that it could not tell. But let the artificer, or man, be submitted to the joint observation of the knowing faculties and Causality, and let the question be put, Who made him ?—the knowing powers, by examining the structure of his body, would present Causality with data from which it could unerringly infer, that although it perceived in him intelligence and power sufficient to make the watch, yet, from the nature of his constitution, he could not possibly have made himself. Proceeding in the investigation, Causality, still aided by the knowing faculties, would perceive the most striking indications of power, benevolence, and design in the human frame ; and from contemplating these, it would arrive at a complete conviction, that the watchmaker is the work of a great, powerful, and

intelligent Being. If, however, the question were repeated, "Whence did this Being proceed?" Causality could not answer, any more than it could tell, from seeing the watch alone, who made the watchmaker. The perceptive faculties cannot observe the substance of the Maker of the human body: his existence is discovered by Causality alone; and all that it can accomplish is to infer his existence, and his qualities or attributes, from perceiving their manifestations. Judging by means of reason alone, the inscription, "To the unknown God," on the altar in Athens, mentioned by St Paul, was strictly philosophical. It embodied a clear acknowledgment of the *existence* of a God, while it professed profound ignorance of his substance and mode of being. Dr Vimont remarks, that we cannot fully comprehend God without being his equal; just as a dog cannot comprehend the human mind, in consequence of its utter want of several of the human faculties. Nevertheless, we are, as I have attempted to shew, capable of attaining to a thorough conviction of his *existence*, and of his possessing the attributes which we see manifested in his works.

I have stated the argument in the plainest language, but with perfect reverence; and we are arrived at the conclusion, that this faculty is silent as to the cause of the Creator of man, and cannot tell whether he is self-existent, or called into being by some higher power. But thus far it can go, and it draws its conclusions unhesitatingly, that he *must exist*, and *must possess the attributes* which it perceives manifested in his works: and, these points being certain, it declares that he is God *to us*; that he is *our* Creator and Preserver; that all his qualities, so far as it can discover, merit our profoundest respect and admiration; and that, therefore, he is *to man* the highest and most legitimate object of veneration and worship.

It has been objected, that although Causality may discover that God *has* existed, it sees no evidence that he *now* exists. The answer to this remark appears to me to be, that the manifestations of his power, wisdom, and goodness,

continue to be presented to Causality every moment, and that it has no data for concluding that the *cause* of them has ceased, while their effects remain monuments of his being.

The organ is regarded as established.

ADAPTATION OF THE EXTERNAL WORLD TO THE INTELLECTUAL FACULTIES OF MAN.

THE external world and the human mind, having emanated from the same Creator, should be found wisely adapted to each other ; and this accordingly appears, in an eminent degree, to be the case. If the reader will direct his attention to any natural or artificial object, and consider, *1st*, its existence ; *2d*, its form ; *3d*, its size ; *4th*, its weight ; *5th*, its locality, or position in space ; *6th*, the number of its parts ; *7th*, the order or physical arrangement of its parts ; *8th*, the changes which it undergoes ; *9th*, the periods of time within which these take place ; *10th*, the analogies and differences between the object under consideration and other objects ; *11th*, the effects which it produces ; and, *lastly*, if he will designate the assemblage of ideas thus acquired by a name—he will find that he has obtained a tolerably complete notion of the object of his contemplation, and is able to express it.

This order should be followed in teaching the sciences. Botany and Mineralogy are rendered intolerably tedious and uninteresting to many persons, who really possess sufficient natural talents for studying them, in consequence of names and classifications being erroneously taught as the chief objects to be attained. A better method would be, to make the pupil acquainted with his own mental powers, and to furnish him with experimental knowledge that these stand in definite relations to external objects, and feel a positive pleasure in contemplating them. His attention should then be directed to the existence of the object, as in itself interesting to Indi-

viduality ; to its form, as interesting to the faculty of Form ; to its colour, as pleasing to the faculty of Colouring ; and so forth with its other qualities : while the name, order, genus, and species, should be taught, in the last place, as designative merely of the qualities and relationship of the objects with which he has become conversant. Practice in this mode of tuition will establish its advantages. The mind which, unexercised, regards all forms, not extravagantly ugly or beautiful, with indifference, will soon experience delight in discriminating minute degrees of elegance and expression ; and a similar effect will follow the cultivation of the other powers. The larger the organs, the greater will be the delight experienced in study ; but even with a moderate development much may be attained. Nor is it necessary to resort to schools and colleges for this exercise of the intellect. Objects in nature and art calculated to stimulate our faculties everywhere abound ; and if the reader, as he walks in the town or country, will actively apply his various powers in the manner now pointed out, he will find innumerable sources of pleasure within his reach, although he should not know scientific names and classifications.

I am indebted to my excellent friend Mr Gustav von Struve of Mannheim, for the following remarks :—

“ *Eventuality* conceives the occurrences of life in their connection with *Time*, *Causality* in their connection with *Causation*. Eventuality is therefore with regard to time what Causality is with regard to cause and effect, and motive and sequel.

“ Synthesis (comparison) is to the reflecting faculties what synchronous history is to the knowing faculties, when applied to occurrences ; chronological history is to the latter what analysis is to the former. As analysis in chemistry resolves a body into its constituent elements, so in an inquiry into the cause of an effect, or into the motive of a sequel, analysis resolves an event into its elements.

“ A body is subject to the physical laws, which rule in space ; an *event*, to those which govern time.

“Whilst, therefore, the constituent parts of a body co-exist (in space), the constituent elements of an event follow each other (in time). Our senses make us directly acquainted with the constituent parts of a body, but we cannot by means of these directly perceive the constituent elements of events. These we discern only intellectually by means of our Causality; and we discern them only by discovering that one event is the parent of the other, while it again, in its turn, may be the offspring of a third (still more remote), and so on without end.

“To draw conclusions is nothing else but to prove these (affinitive) relations. In so far as conclusions relate to the *physical world*, we call the parents *causes*, and the offspring *effects*; in so far as they relate to *time*, we call the parents *motives*, and the offspring *sequels*.”¹

¹ Der Thatsachensinn fasst die Erscheinungen des Lebens auf in ihrem zeitlichen Zusammenhange, das Schluss-Vermögen in ihrem Causal-Zusammenhange. Der Thatsachensinn ist daher in zeitlicher Beziehung, was das Schlussvermögen in Beziehung auf Ursache und Wirkung, Grund und Folge ist.—Was für das Erkenntniss-Vermögen in seiner Richtung auf Zeit die synchronistische Geschichte, das ist für das Denkvermögen die Synthese (die Vergleichung); was für jenes die chronologische Geschichte, ist für dieses die Analyse. Wie die Analyse in der Chemie einen Körper in seine Grundbestandtheile zerlegt, so zerlegt sie in der Forschung nach der Ursache der Wirkung, oder nach dem Grunde der Folge eine Begebenheit in die ihrigen.—Ein Körper folgt den Gesetzen des Raumes, eine Thatsache denjenigen der Zeit.—Während daher die bestandtheile eines Körpers neben einander bestehen, folgen die Grundbestandtheile der Begebenheit auf einander. Die Bestandtheile der Körperwelt zeigen uns unmittelbar unsere Sinne, die Bestandtheile der Begebenheiten können wir durch sie nicht unmittelbar wahrnehmen;—diese können wir nur geistig, nur mittelst unseres Schlussvermögens, —nur dadurch erkennen, dass wir ausmitteln, eine Thatsache sei die Mutter der andern, wenn sie auch selbst wieder die Tochter einer dritten ist, und sofort ins Unendliche.—Schliessen ist nichts anderes, als dieses Verwandtschafts-Verhältniss nachweisen. Insofern die Schlüsse sich beziehen auf die Körperwelt, heissen die Eltern Ursachen, und die Kinder Wirkungen; insofern sie sich beziehen auf die Zeit, heissen die Eltern Gründe, die Kinder Folgen.

MODES OF ACTION OF THE FACULTIES.

ALL the faculties tend to action, and, when active in a due degree, produce actions good, proper, or necessary: It is excess of activity and ill direction that occasion abuses. It is probable that Phrenology has been discovered only in consequence of some individuals, in whom particular organs were very largely developed, having yielded to the strongest propensities of their nature. The smallness of a particular organ is not the cause of the corresponding faculty producing abuses. Although the organ of Benevolence be small, it will not occasion cruelty; but, as it will be accompanied with indifference to the happiness of others, its deficiency may lead to the omission of duties. When, also, one organ is small, abuses may result from another being left without proper restraint. Thus, large organs of Acquisitiveness and Secretiveness, combined with small organs of Reflection and Conscientiousness, may, in certain circumstances, lead to theft. Powerful Destructiveness, with weak Benevolence, may produce cruel actions.

Every faculty, when in action, from whatever cause, produces the kind of feeling, or forms the kind of ideas, already described as resulting from its natural constitution. Large organs have the greatest tendency to act; small organs the least. Since every organ tends to action, it is clear that each must have a legitimate sphere of action. None of them is necessarily and inherently bad, otherwise God must have deliberately created organs for no other purpose than to lead us into sin.

The PROPENSITIES and SENTIMENTS cannot be excited to action directly by a mere command of the will. For example, we cannot conjure up the emotions of fear, compassion, and veneration, by merely willing to experience them; and hence we are not to blame for the absence of any emotion at a particular time. These faculties, however,

may enter into action from an internal excitement of the organs; and then the desire or emotion which each produces will be felt, whether we will to experience it or not. Thus, the cerebellum being active from internal causes, produces the corresponding feeling; and this cannot be avoided if the organ be excited. We have it in our power to permit or restrain the manifestation of it in action; but we have no option, if the organ be excited, to experience, or not to experience, the feeling itself. The case is the same with the organs of Cautiousness, Hope, Veneration, and the others. There are times when we feel involuntary emotions of fear, or hope, or awe, arising within us, for which we cannot account by reference to external causes; such feelings depend on the spontaneous action of the organs of these sentiments, which, again, probably arises from increased circulation of the blood in their vessels.

“We cannot Nature by our wishes rule,
Nor, at our will, her warm emotions cool.”

Crabbe.

In the *second* place, these faculties may be called into action independently of the will, by presenting the external objects fitted by nature to excite them. When an object in distress is presented, the faculty of Benevolence starts into activity, and produces the feelings which depend upon its constitution. When an object threatening danger is perceived, Cautiousness gives an instantaneous emotion of fear. And when lovely objects are contemplated, Ideality inspires us with a feeling of beauty. In all these cases, the power of acting, or of not acting, is dependent on the will; but the power of feeling, or of not feeling, is not so. When the temperament is active, emotions are much more easily excited, both by external and internal causes, than where it is sluggish.

“It seems an unaccountable pleasure,” says Hume,¹
“which the spectators of a well-written tragedy receive from

¹ *Essay 22.*

sorrow, terror, anxiety, and other passions, that are in themselves disagreeable and uneasy. The more they are touched and affected, the more are they delighted with the spectacle. The whole art of the poet is employed in rousing and supporting the compassion and indignation, the anxiety and resentment, of his audience. They are pleased in proportion as they are afflicted, and never are so happy as when they employ tears, sobs, and cries, to give vent to their sorrow, and relieve their hearts, swollen with the tenderest sympathy and compassion."

Many volumes have been written to solve this problem. Those authors who deny the existence of benevolent and disinterested feelings in man, maintain, that we sympathize with *Cato*, *Othello*, or *King Lear*, because we conceive the possibility of ourselves being placed in similar situations, and that then all the feelings arise in us which we should experience, if we were suffering under similar calamities. Mr Stewart, who, on the other hand, admits the existence of generous emotions in the human mind, states it as his theory, that we, for an instant, believe the distress to be real; and under this belief feel the compassion which would naturally start up in our bosoms, if the sufferings represented were actually endured. A subsequent act of judgment, he says, dispels, in an almost imperceptible portion of time, the illusion, and restrains the mind from *acting* under the emotion; which, if the belief of reality continued, it would certainly do, by running to the relief of the oppressed hero or heroine: but still he considers that a momentary belief is necessary to call up the emotions which we experience.

The phrenological doctrine before explained appears to me to furnish the true explanation. Each propensity and sentiment may be called into action by presentation of its object, and, when active, the corresponding feeling or emotion attends it, in virtue of its constitution. Happiness consists in the harmonious gratification of all the faculties; and the very essence of gratification is activity. "Thus, the muscular system," says Dr A. Combe, "is gratified by motion,

and pleasure arises ; the eye is gratified by looking at external objects ; Combativeness, by overcoming opposition : Destructiveness, by the sight of destruction and the infliction of pain ; Benevolence, by the relief of suffering ; Hope, by looking forward to a happy futurity ; Cautiousness, by a certain degree of uncertainty and anxiety, &c. As the degree of enjoyment corresponds to the number of faculties simultaneously active and gratified, it follows, that a tragic scene, which affords a direct stimulus to several of the faculties at the same moment, *must be agreeable*, whatever these may be ; 1st, if it do not, at the same time, outrage any of the other feelings ; and, 2dly, if it do not excite any faculty so intensely as to give rise to pain ; just as too much light hurts the eye, and too much exertion fatigues the muscles." In the play of *Pizarro*, for example, when the child is introduced, its aspect and situation instantly excite Philoprogenitiveness, and individuals possessing this organ largely feel a deep interest in it ;—the representation of danger to which it is exposed rouses Cautiousness, producing *fear for its safety* ; when *Rolla* saves it, this fear is allayed, Philoprogenitiveness is highly delighted, and Benevolence also is gratified ; and the excitement of these faculties is pleasure. All this internal emotion takes place simply in consequence of the constitution of the faculties, and the relation established by nature between them and their objects, without the understanding being imposed on, or forming any theory about the scenes, whether they are real or fictitious. A picture raises emotions of sublimity or beauty on the same principles. "The cloud-capt towers and gorgeous palaces" are fitted by nature to excite Ideality, Wonder, and Veneration ; and, these faculties being active, certain emotions of delight ensue. When a very accurate representation of the towers and palaces is executed on canvass, their appearance in the picture excites into action the same faculties which their natural lineaments would rouse, and the same pleasures kindle in the soul. But what should we think if Mr Stewart assured us that we must believe the paint and canvass to be

real stone and mortar, and the figures living men and women, before we can enjoy the scene? And yet this would be as reasonable as the same doctrine applied to tragedy. We may weep at a tragedy represented on canvass, and know all the while that there are only colours and forms before us; and we may shed tears at seeing a tragedy acted,—which is merely a representation, by means of words and gestures, of objects calculated to rouse the faculties,—and yet labour under no delusion respecting the reality of the incidents.

If the propensities and sentiments become excessively active from these representations, they may overpower the intellect, and a temporary belief may follow; but, in this case, strong emotion does not *arise* from a *previous illusion of the understanding*; on the contrary, the misconception in the intellect is the *consequence* of the feeling having become overwhelming. This remark is illustrated and confirmed by the following extract from the life of Mrs Siddons:—“It was my custom,” says she, “to study my characters at night, when all the domestic cares and business of the day were over. On the night preceding that in which I was to appear in this part for the first time, I shut myself up, as usual, when all the family were retired, and commenced my study of *Lady Macbeth*. As the character is very short, I thought I should soon accomplish it. Being then only twenty years of age, I believed, as many others do believe, that little more was necessary than to get the words into my head; for the necessity of discrimination, and the development of character, at that time of my life, had scarcely entered into my imagination. But, to proceed, I went on with tolerable composure in the silence of the night (a night I never can forget), till I came to the assassination scene, when the horrors of the scene rose to a degree that made it impossible for me to get farther. I snatched my candle, and hurried out of the room, in a paroxysm of terror. My dress was of silk, and the rustling of it, as I ascended the stairs to go to bed, seemed to my panic-struck fancy like the movement of a spectre pursuing me. At last I reached my cham-

ber, where I found my husband fast asleep. I clapt my candlestick down upon the table, without the power of putting the candle out ; and I threw myself on my bed, without daring to stay even to take off my clothes.”¹

Excessive action of the affective faculties, or the removal of their objects, causes uneasiness or pain.

The law of our constitution above explained, accounts also for several of the phenomena of insanity. All the organs are liable to become strongly and involuntarily active through disease ; this produces mental excitement, or violent desires to act in the direction of the diseased organs. If Destructiveness be affected in this manner, fury, which is an irresistible propensity to violence and outrage, will ensue. If the organs of Cautiousness become involuntarily active through disease, fear will constantly be felt ; and this constitutes melancholy. If Veneration and Hope be excited in a similar way, the result will be involuntary emotions of devotion, the liveliest joy and anticipations of bliss ; which feelings, fixed and immoveable, amount to religious insanity. It occasionally happens that a patient is insane in one feeling alone, such as Cautiousness, Hope, or Veneration, and that, if the sphere of activity of this faculty be avoided, his understanding on other subjects is sound, and his general conduct rational and consistent. Thus, a person insane in Self-Esteem, sometimes imagines himself to be a king ; but on other topics evinces sound sense, and consequentness of judgment. This results from the organs of intellect being sane, and only the organ of Self-Esteem diseased. Sometimes well-meaning individuals, struck with the clearness of the understanding in such patients, endeavour to point out, by means of argument, the erroneous nature of the notions under which they suffer ; supposing that, if they could convince their intellect of the mistake, the disease would be eradicated : but the malady consists in an unhealthy action of the organ of a sentiment or propensity ; and, as long as the diseased state of that organ continues,

¹ Campbell's *Life of Mrs Siddons*, vol. ii. p. 55.

the insane feeling will remain, and argument will do as little to remove it as a speech would accomplish in curing gout.

The converse of the doctrine now explained also holds good ; that is to say, if the organ be not active, the propensity or emotion connected with it cannot be felt ; just as we cannot hear a sound when the auditory apparatus is not excited by vibrations of the air.

The most important practical consequences may be deduced from this exposition of our mental constitution. The larger any organ is, the more it is predisposed to become active ; and the smaller, the less so. Hence an individual prone to violence, to excessive pride, vanity, or avarice, is the victim of an unfavourable development of brain ; and in our treatment of him we should bear this fact constantly in mind. If we had wished, for example, to render Bellingham mild, the proper proceeding would have been, not to punish him for being ill-tempered, for this would have directly excited his Destructiveness, the largeness of which was the cause of his wrath ; but to address ourselves to his Benevolence, Veneration, and Intellect, that, by rousing them, we might assuage the vehemence of Destructiveness. In a case like that of David Haggart, in whom Conscientiousness was very deficient, we should always bear in mind, that, in regard to feeling the obligation of justice, such an individual is in the same state of unhappy deficiency, as Mr Milne is in perceiving colours, and Ann Ormerod in perceiving melody ; and our treatment ought to correspond. We would never think of attempting to improve Ann Ormerod's organ of Tune by beating her ; and, Haggart's Conscientiousness being naturally as deficient, we could as little have succeeded in enabling him to feel and act justly by inflicting severe punishment. The reasonable plan in such cases is, first, to avoid placing the individual in circumstances demanding the exercise of the deficient faculty—not to place Ann Ormerod, for instance, in a band of singers, or David Haggart in a confidential situation, where property is entrusted to his

care ;—and, in the next place, to present to all the organs of the higher sentiments which are largely possessed, motives calculated to excite them and to control the propensities, so as to supply, as far as possible, by other means, the directing power of the feeble Conscientiousness.

Occasionally, individuals who are very deficient in several of the moral and intellectual organs, will not believe in their own deficiencies, and, in opposition to the counsels of their best friends, insist on engaging in enterprises which they are incapable of conducting with success. The proper mode of treating such persons, is to restrain them if possible ; and, if this cannot be done, to allow them to suffer the disagreeable consequences of their own line of conduct. It is only by undergoing these that their own incapacity becomes practically known to themselves.

If the principle be correct that large organs give strong desires, and small organs weak impulses, Phrenology must be calculated, in an eminent degree, to be practically useful in society. If, in choosing a servant, we are afraid or ashamed to examine the head, and engage one with a brain extremely deficient in the moral organs, and large in those of the animal propensities, like that of Mary Macinnes, and if certain strong animal feelings accompany this development, we shall unquestionably suffer annoyance as the consequence. If we select an individual very deficient in Conscientiousness as a child's maid, she will labour under a natural blindness to truth, and if Secretiveness be large, she will not only lie herself, but probably teach the children entrusted to her care this abominable vice. If a merchant select a clerk with a head like David Haggart's, and place money at his disposal, the strong animal feelings, unrestrained by Conscientiousness, may prompt him to embezzle it. In the *Phren. Journ.*, vol. xiv. p. 297, I have endeavoured to point out the "Application of Phrenology to the purposes of the Guarantee Society, for providing security for persons in situations of trust."

In the next place, if the presentation of the object of a faculty rouse it into instant action,—as suffering, Benevolence,

—or danger, Cautiousness,—this becomes a highly important principle in the education of children. If, in our intercourse with them, we assume the natural language of Destructiveness and Self-Esteem, we shall cultivate these faculties in their minds, by exciting the organs; if we manifest Benevolence and Veneration in their presence, we shall excite the same faculties in them; if we discourse constantly about money, the desire of increasing it, and the fear of losing it, we shall stimulate the organs of Acquisitiveness and Self-Esteem in them, and increase the power of these propensities.

In the third place, the faculties of which we are now speaking may be excited to action, or repressed, *indirectly*, by an effort of the will. Thus, if the knowing faculties (which form ideas) be employed to *conceive* internally, objects fitted by nature to excite the propensities and sentiments, the latter will start into action in the same manner, though not with so much intensity, as if their appropriate objects were externally present. For example, if we conceive inwardly an object in distress, and Benevolence be powerful, compassion will be felt, and tears will sometimes flow from the emotion produced. If we wish to repress the activity of Ideality, we cannot do so by merely willing that the sentiment be quiet; but if we conceive objects fitted to excite Veneration, Cautiousness, Self-Esteem, or Benevolence, the organs of these feelings will then be excited, and Ideality will sink into inactivity. The vivacity of the feeling, in such cases, will be in proportion to the strength of the conception and the energy of the propensities and sentiments.

If the organ of any propensity or sentiment enter into vigorous action from internal causes, it will prompt the intellectual faculties to form conceptions fitted to gratify it; or, in other words, the habitual subjects of thought will be determined by the organs which are predominantly active from internal excitement. If the cerebellum be permanently active, the individual will be prone to collect pictures, books,

and anecdotes, fitted to gratify the feeling ; his mind will be much occupied with such ideas, and they will afford him delight. If, in another individual, Constructiveness, Ideality, Imitation, and the knowing organs, be internally active, he will desire to see pictures, busts, and works of art, in which skill, beauty, and expression are combined ; or he will take pleasure in inventing and constructing them. He will know much about such objects, and be fond of possessing them, and of talking about them. If, in another individual, Acquisitiveness be internally active, he will feel a great and natural interest in all matters connected with wealth, and be inspired with an eager curiosity to know the profits of different branches of trade, and the property possessed by different individuals. If Benevolence be internally active, the mind will run habitually on schemes of philanthropy, such as those of Howard, Mr Owen, or Mrs Fry. In these cases, the *liking* for the object or pursuit will depend upon the particular propensities or sentiments which are active ; the intellectual faculties serving merely as the ministering instruments of their gratification. If the pursuit be purely intellectual, such as the study of mathematics or algebra, the *liking* will arise from the activity of the intellectual faculties themselves.

These principles enable us to explain the great variety of tastes and dispositions among mankind ; for in no two individuals are all the organs to be found combined in the same relative proportions, and hence every one is inspired with likings in some degree peculiar to himself.

As the propensities and sentiments do not form ideas, and as it is impossible to excite or call up directly, by an act of the will, the feelings or emotions produced by them, it follows that these faculties have not the attributes of Perception, Conception, Memory, and Imagination. If, twelve months ago, I sustained a grievous insult, my intellectual faculties may recollect the event, and also the fact that I then experienced vivid emotions of anger and indignation ; but I cannot now recall these emotions themselves as they then existed. If I could, I should suffer all the distress of them

anew, which is mercifully prevented by the law of action which I am now explaining. The propensities and sentiments have the attribute of Sensation alone; that is to say, when they are active, a sensation or emotion is experienced. Hence, Sensation is an accompaniment of the action of all the faculties which feel, and of the nervous system in general; but Sensation is not a faculty itself.

Mr Sidney Smith, in his *Principles of Phrenology*, p. 79, ably illustrates the doctrine that the propensities and sentiments have no memory. "Consciousness of emotion," says he, "is the result solely of the relation of the activity of the organs of sentiment or propensity, in conjunction with that of some of the intellectual organs. Thus, for example, we cannot love in the abstract. No man ever felt the tender influence of this emotion as a feeling, independent of any related object. It is the perceptive faculties, which, relating the passion to its subject, first makes the state of mind or emotion present to our consciousness." * * * "So of anger, and of all other states of the various passions and emotions. They are mere susceptibilities; it is the presentation of their related objects which superinduces their state of conscious activity." * * * "A man may possess so large an endowment of the organ of Combativeness, that, as the phrase goes, he would fight with his own shadow; but his perceptive faculties must present to this organ his shadow, before he can incline to fight." * * * "Whenever we have forgotten the object which excited any particular passion, the passion itself no longer exists to our consciousness; and if we wish to revive it, we instinctively adopt, as the means of accomplishing the desire, the plan of recalling all the objects and facts wherewith it was originally connected. This is the only means. Destroy the memory of the form, face, eyes, voice, expression, actions of a being we once loved, and the emotion of affection itself remains perfectly dormant." * * * "Let the young and the beautiful tear from her breast the locket which she keeps as the last gift of him who was unworthy of

her, it is an object which suggests his image, and on his image alone hangs her love. Let the new made widow, after the days of decent grief, cease to tear aside the curtain that veils her husband's portrait, the sight of which makes her wounded heart bleed afresh, and bids her neglect life and children. When his form grows dim and inarticulate to her sight, she will return to her duties."

These remarks appear to me to be well founded, but there is one principle already stated which it is necessary to bear in mind. Each propensity and sentiment may become active from internal causes, and then it will prompt the intellectual faculties to form vivid ideas of its objects. When the lover doats fondly on the ever present image of his mistress, her form and face are unquestionably conceived by the intellectual faculties; but it is the spontaneous activity of the propensities and sentiments which stimulates them to the constant exertion of forming and preserving that image in preference to all others. When the emotions cease to be felt, the power of forming the conceptions will remain, but these will no longer interest the mind to the same extent as formerly, nor continue so habitually present. By weakening an emotion, we may free the intellect from the dominion of the related ideas; and also, by diverting the intellect from these conceptions, we may abate the intensity of an emotion. The influence is reciprocal.

Some individuals have assured me that they are capable of recalling emotions at pleasure, and they contest the soundness of the views before stated; but I have observed that such persons possessed large organs of Imitation and Secretiveness, with an active temperament, which constitute the elements of an actor's talent. Those who have a genius for the stage possess, from this combination, a power of calling up, at will, the activity and natural language of any faculty, and of representing its emotions; but my conviction is, that they do so by conceiving objects related to the emotion; and that then the reciprocal influence before explained of the

intellect on the propensity, and the propensity on the intellect, takes place.

The laws of the **KNOWING** and **REFLECTING** faculties are in several respects different. These faculties form ideas, and perceive relations; they constitute will, and minister to the gratification of the other faculties which only feel. *Will* is a peculiar *kind* or *mode* of action of the intellectual faculties, different from perception and judgment.

The doctrine that the intellectual faculties constitute will may be thus elucidated. Will results from the decision and resolution of the intellect to follow a certain course of action, which may be prompted by inclination, by a sense of duty, or by the pressure of external compulsion. It is different from perseverance, obstinacy, stubbornness, and infatuation, which result from excessive energy of the organs of Firmness. Although a sheep, when it escapes from a flock, or a horse, when it breaks loose from the harness, may run with great vivacity and speed, they have no design, no fixed motive, no will. They are actuated by inclination, but intellect has given to it no specific direction. They are so deficient in the reflecting faculties, that they have no power of surveying their situation, forming an intellectual determination, and pursuing with sagacity an ulterior end. They run now one way, now another, obviously without aim. When the sheep is caught, it is often dragged back to the flock by the horns, resisting at every step. This resistance is not the result of *will*, but of blind Combativeness offering opposition, or of Firmness practising obstinate resistance. An idiot is defective in intellect, and his will is to a corresponding extent deficient. If he be totally idiotic, he may have inclinations, but he can conceive no purpose, and form no resolution; he will be an entire automaton. If he possess some degree of intellect he will be capable, to that extent, of forming a design, and of *willing* to execute it. A man of great intellect surveys a vast horizon of knowledge, forms judgments, and *wills* to act on his determinations. Thus *will* increases with the intellectual faculties.

The element of inclination very generally comes from the propensities and sentiments. They give the desires which prompt us to action ; but the decision, the determination, the *will* to act on them, comes from the intellect. A man of a strong will, like Napoleon, is one who possesses energetic desires, combined with powerful intellect. If we wish to *lead the will* of an individual whom we regard as soft, good-natured, and unintellectual, to a particular course of action, we address his feelings. If we desire to lead the will of a man of superior understanding, we address his intellect, and endeavour to convince him. We produce will, in the first, by exciting the feelings, because we believe them to be so powerful, that they will draw after them the intellect ; and, in the second, by convincing the intellect, because we know that it will command the feelings to follow its dictates. In both instances, inclination and judgment are present, but as the *degree of will* bears a relation directly to the extent of the intellect, I consider intellect as essentially constituting will.

When we act under a sense of duty, or from external compulsion, as when a criminal walks to the place of execution, the intellect commands the action, even in opposition to inclination. The anterior lobe of the brain manifests the intellectual faculties, and is directly connected with and commands the motory tract of the spinal marrow, by means of which all voluntary movements are executed. That *Will* is manifested even in walking to execution is obvious, because, without it, the voluntary muscles would not move. The power of executing voluntary motions is limited by the extent of the intellectual faculties ; for if certain intellectual organs be deficient, the motions necessary to accomplish the acts to which they are related cannot be performed, although the nerves and muscles of voluntary motion be complete. A man in whom the organs of Time, Tune, and Weight are deficient, cannot command those motions of the fingers which produce melody from a violin ; nor can one deficient in Size and Weight produce those motions which are necessary to send an arrow from a bow

directly to a mark. Each organ, both of the feelings and intellect, gives the power of performing certain instinctive movements; Destructiveness, for example, to strike, Self-esteem to draw up the head and the body, and so forth; but these motions must be distinguished from those which are voluntary, and all of which latter seem to me to proceed from faculties situated in the anterior lobe alone.¹

The modes of action of the intellectual powers are the following.

1st, These faculties may become active from excitement of the organs by internal causes, and then the kinds of ideas which they are fitted to form are presented involuntarily to the mind. The musician feels the notes flowing on him uncalled for. A man in whom Number is powerful and active, calculates by a natural impulse. He in whom Form is vigorous, conceives figures by internal inspiration. He in whom Causality is powerful and active, reasons while he thinks, without an effort. He in whom Wit is energetic, feels witty conceptions flowing into his mind spontaneously, and even at times when he would wish them not to be present.

2dly, These faculties may be excited by the presentation of external objects fitted to call them into action; and,

3dly, They may be excited to action by impulses from the propensities and sentiments.

When excited by the presentation of external objects, the objects are PERCEIVED, and this act is called PERCEPTION.² Perception is a mental state consequent on impressions made on the nerves of the senses, and communicated by them to the organs of the knowing and reflecting faculties. A low degree of development of these organs is

¹ See some observations on the "Relation between the Structure and the Functions of the Brain," in the Introduction, p. xxxi. to my translation of Gall on the Cerebellum.

² See a note on this subject by H. C. Watson in *Phrenological Journal*, vol. x. p. 497. I have partially adopted Mr Watson's ideas there expressed.

sufficient to enable them to perceive the objects which make the impressions; and each organ serves to perceive the objects related to itself. If no idea is formed when the object is presented, the individual is destitute of the power of manifesting the faculty. Thus, when tones are produced, he who cannot perceive the melody of them, is incapable of manifesting the faculty of Tune. When a coloured object is presented, the individual who cannot perceive, so as to distinguish the tints, is destitute of the faculty of Colouring; and so forth. Thus, Perception is a mode of action of the faculties which form ideas; but it is not an independent primitive faculty.

This doctrine is not theoretical, but is clearly indicated by facts. In the case reported by Mr Hood,¹ a patient who lost the *memory* of words, yet enjoyed *perception* of their meaning. He understood language spoken by others;—or, the organ of Language retained so much of its power as to enable him to *perceive* the meaning of words when presented to his mind, but so little as not to be sufficient to recall words by an act of his will, so as to express his thoughts. The case of Mr Ferguson² is another in point. He enjoyed so great a degree of the organ of Size as to be able to perceive distance when natural scenery was presented, but so little as to be quite unable to recollect it when the objects were withdrawn. Mr Sloane³ is in a similar situation in regard to colours. He *perceives* the *differences* of hues when they are before his eyes, but has so little of the organ of Colouring that he does not recollect, so as to be able to name them separately. Many persons, among whom I am one, are in a similar condition in regard to music; they perceive melody and enjoy it when presented to the ear, but have so little of the faculty of Tune as to be unable afterwards to recall the notes. The same phenomena are seen in the case of the reflecting powers. There are individuals in whom the organs of Comparison and Causality are so much developed, that

¹ Page 136.² Page 43.³ Page 61.

they are able to perceive a simple argument when clearly placed before them, who, nevertheless, are quite incapable of reproducing it themselves. They ascribe their defect to a feeble memory; but they often shew no lack of memory for music, or mechanics, or botany, or other subjects not involving Causality. The real cause of their deficiency is a low degree of development of the organs now named.

Here, again, a highly valuable practical result presents itself. If we place a person with a forehead like Fraser's, in whom the reflecting organs are deficient, in a situation, or to apply to him for advice in circumstances, in which great natural sagacity and depth of intellect are necessary to forming a sound judgment, we shall assuredly be disappointed: whereas, if we apply to one having such a combination as that of Dr Franklin, in whom the organs of reflection were very large, there will be much more of the instinctive capacity of tracing out beforehand the probable chain of causation, and anticipating the effects of measures which we propose to follow. Fraser might shew good sense and sound judgment *after* the consequences were pointed out to him, because he possesses a development of the reflecting organs sufficient to give him *perception* of causation when presented; but he could not, except to a very limited extent, anticipate effects from known causes, for this demands a higher degree of power.

According to this view, which regards Perception as a special kind of action of *every* intellectual faculty, an individual may possess acute perception as to one class of objects, and be very deficient in it as to others. Thus, Mr Milne has an acute perception of form, although he cannot perceive some colours; other individuals perceive symmetry distinctly who cannot perceive melody. This exposition has the merit of coinciding with nature; for we frequently meet with such examples as those I have now cited.

The metaphysicians, on the other hand, treat of Perception as a *general faculty*; and, when their doctrine is applied to nature, the extraordinary spectacle is presented, of their

general power performing in the same individual half its functions with great effect, while it is wholly inefficient as to the other half; just as if legs which were sufficient to walk east could be quite inadequate to walking west. Dr Thomas Brown has abandoned this inconsistency; and differs from Reid, Stewart, and all his predecessors, in denying perception to be any thing more than an act of the general power of the mind. We call it an act of each special intellectual faculty; but with these Dr Brown was not acquainted.

CONCEPTION. When the knowing or reflecting organs are active from internal excitement, ideas are conceived; and the act of forming them is styled **CONCEPTION**: if the act amounts to a very high degree of vivacity, it is called **IMAGINATION**. Thus perception is the result of the action of any of these faculties excited by an external object; and conception and imagination are different kinds and higher degrees of action depending on internal causes, and without the interference of an external object. Each faculty performs the act of conception in its own sphere. Thus, if a person have a powerful organ of Tune, he may be able, when no instrument is sounding in his ear, to conceive, or call up in his own mind, the notes of a tune; whereas, if his organ of Form be very small, he may not be able to bring shapes before his mind with equal facility. Some persons read music like a book, the written sign of a note being sufficient to enable them to call up the impression of the note itself in their minds. This is the result of a very high degree of activity of the faculties of Form and Tune. Temperament has a great effect on activity; the lymphatic temperament needs external objects to rouse it to vivid action, while the sanguine and nervous glow with spontaneous and constitutional vivacity. Hence imagination, which results from a high degree of activity, is rarely found with a temperament purely lymphatic, but becomes exalted in proportion to the approach of the temperament to the nervous.

In treating of Colouring, I cited a passage, in which

Mr Stewart, after stating the fact that some men are able to distinguish different tints when presented together, who cannot name them when separate, attributes this want of discrimination to defect in the power of *conception*, probably arising, he supposes, from early habits of inattention. To a certain extent he is correct; an individual like Mr Sloane may be found, whose organ of Colouring enables him to distinguish hues when seen in juxtaposition, and is yet so weak as not to give him *conception* or memory of them when seen apart, and this would certainly indicate a deficient power of *conception*; but then the power of conception may be deficient in this faculty alone, and very vigorous in all the others. On Mr Stewart's principle that conception is a general power, we here meet with the anomaly of its performing one portion of its functions well, while it is very deficient in another; which defect is accounted for by him, by ascribing it to early habits of inattention. These early habits themselves, however, may be traced to deficiency in the size of the particular intellectual organ, because, if any organ be large, the related faculty will be powerful, and a faculty, naturally strong, eagerly attends to its objects.

When any of the knowing or reflecting faculties is internally active, it conceives ideas of the objects to which it is related. Thus Locality, Colouring, and Size, being active, we are able, with our eyes closed, to conceive a landscape in all its details of hill and dale, sunshine and shade. If this internal action become morbid, through disease of the organs, then ideas become fixed, and remain involuntarily in the mind; and if this be long continued, it constitutes insanity. Many persons have experienced, when in the dark, vivid impressions of figures of every variety of colour and form passing before the mind, sometimes invested with alarming brilliancy and vivacity. I conclude that this arises from internal excitement of the organs situated at the superciliary ridge, namely, Form, Locality, Colouring, and others. This affection is, in most instances, only momentary; but suppose that it were to become fixed and continuous, then the mind

would be haunted by permanent and vivid conceptions of fantastic beings, invested with more than the forms and hues of reality. This would be insanity ; not a morbid feeling, such as melancholy, or fury, or religious joy, but an intellectual delusion : Every sentiment might be sound, yet this aberration of intellect might remain fixed, and immovable by the will. If we suppose this disease to take place in several knowing organs, leaving the organs of reflection entire, it is quite possible to imagine that the individual may have false perceptions on some points, and not only be sane on all others, but be able, by means of the faculties that remain unaffected, to distinguish the erroneous impressions. Such cases actually occur.

The phenomena of apparitions, or spectral illusions, may be accounted for by the principles now explained. If several organs become active through internal excitement, they produce involuntary conceptions of outward objects, invested with all the attributes of form, colour, and size, which usually distinguish reality. Many interesting examples of this affection are given in *The Phrenological Journal*.¹

The organs of the knowing faculties seem, from the descriptions of the apparitions, to be the seats of these diseased perceptions. Nicolai, the Berlin bookseller, saw the *form* as of a deceased person, within eight steps of him—*vast numbers* of human and other forms equally in the day and night—crowds of both sexes—people on horseback—birds and dogs—of natural size, and distinct as if alive—of natural colour, but paler than reality. He then *began to hear them talk*. On his being bled with leeches, the room was crowded with spectres—in a few hours their *colour* began to fade, but in a few more they were white. They dissolved in air, and *fragments* of them were visible for some time. Dr Alderson of Hull furnishes other two cases. Mr R. left his wife and family in America, but saw them and conversed

¹ Vol. i. p. 541 ; ii. 111, 293, 362 ; v. 210, 319, 430 ; vi. 260, 515 ; vii. 0, 163 ; x. 47, 217.

with them in this country—saw *trains* of living and dead persons—in a *bright brass lock* again saw his transatlantic friends, and always in that lock—had violent headach. A pothouse-keeper in Hull saw a soldier in his cellar whom he endeavoured to seize, but found to be an illusion—he attempted to take up oysters from the ground, which were equally unreal—he saw crowds of the living and dead—he scarcely knew real from spectral customers—and suffered repeated flogging from a waggoner with a whip, who was an illusion.¹ I have in vol. i. p. 466, related the case of a man in the west of Scotland with a large organ of *Wonder*, who saw inanimate things and persons in visions—he had a *spotted carpet* for a long time before his eyes, a funeral, and a log of wood on wheels. His son had the same tendency—he followed a beggar who glided and vanished into a wall. All these perceptions are clearly referrible to the knowing organs.

In July 1836 I was present at the examination of the brain of an old gentleman, who, for several years before his death, saw spectral illusions, knowing them to be such. They presented themselves in the costumes of the various countries which he had visited, and even Greek and Roman statues appeared before him. Their dresses were often rich in colouring, and the figures were of all sizes, from gigantic to miniature beings. An old woman wrapped in a cloak, such as is generally worn by Scotch female peasants, was his most frequent visitor. There was great vascularity in the bloodvessels of the brain generally, and the *falx*, and the *dura mater*, lying over the organs of Veneration, Benevolence, Wonder, and Imitation, were thickened and opaque, of the colour and appearance of moistened vellum; exhibiting strong marks of chronic inflammation.

Mr Simpson communicated to *The Phrenological Journal*, vol. ii. p. 294, the following case, which is particularly interesting and instructive. Concomitance of pain in the precise seat of the organs, with disorder of their functions, forms

¹ Alderson's *Essay on Apparitions*, London, 1823.

a striking feature in it; and the author states, that he is ready to afford the means of verification of the facts to any philosophical inquirer.

"Miss S. L.," says Mr Simpson, "a young lady, under twenty years of age, of good family, well educated, free from any superstitious fears, and in perfect general health of body and soundness of mind, has nevertheless been for some years occasionally troubled, both in the night and in the day, with visions of persons and inanimate objects, in almost all the modes and forms which we have already related. She was early subject to such illusions occasionally, and the first she remembers was that of a *carpet* spread out in the air, which descended near her, and vanished away.

"After an interval of some years, she began to see human figures in her room as she lay wide awake in bed, even in the day-light of the morning. These figures were *whitish*, or rather *grey* and *transparent* like *cobweb*, and generally above the *size* of life. At this time she had acute headaches, very singularly confined to one small spot of the head; on being asked to point out the spot, the utmost care being taken not to lead her to the answer, our readers may judge of our feelings as phrenologists, when she touched with her fore-finger and thumb, *each side of the root of the nose, the commencement of the eyebrows, and the spot immediately over the top of the nose, the ascertained seats of the organs of Form, Size, and Individuality!* Here, particularly on each side of the root of the nose, she said the sensation could only be compared to that of running sharp knives into the part. The pain increased when she held her head down, and was much relieved by holding her face upwards.¹ Miss S. L., on being asked if the pain was confined to that spot, answered, that some time afterwards *the pain extended to right and left along the eyebrows, and a little above them, and completely round the eyes, which felt often as if they would burst from their sockets.* When this happened, her visions

¹ "Quere,—Does not this look like a pressure of blood on that region of the brain?"

were varied precisely as the phrenologist would have anticipated, and she detailed the progress without a single leading question. *Weight, Colouring, Order, Number, Locality*, all became affected; and let us observe what happened. The whitish or cobweb spectres assumed the natural *colour* of the objects, but they continued often to present themselves, though not always, above the *size* of life. She saw a beggar one day out of doors, natural in size and colour, who vanished as she came up to the spot. *Colouring*, being over-excited, began to occasion its specific and fantastical illusions. Bright spots, like stars on a black ground, filled the room in the dark, and even in daylight; and sudden and sometimes gradual illumination of the room during the night often took place, so that the furniture in it became visible. Innumerable balls of fire seemed one day to pour like a torrent out of one of the rooms of the house down the staircase. On one occasion, the pain between the eyes, and along the lower ridge of the brow, struck her suddenly with great violence,—when *instantly*, the room filled with stars and bright spots. On attempting, on that occasion, to go to bed, she said she was conscious of *an inability to balance herself, as if she had been tipsy*, and she fell, having made repeated efforts to seize the bedpost; which, in the most unaccountable manner, eluded her grasp, *by shifting its place*, and also by presenting her with *a number of bedposts instead of one*. If the organ of *Weight*, situated between *Size* and *Colouring*, be the organ of the instinct to preserve, and give the power of preserving equilibrium, it must be the necessary consequence of the derangement of that organ to upset the balance of the person. Over-excited *Number* we should expect to produce multiplication of objects, and the first experience she had of this illusion was the multiplication of the bedposts, and subsequently of any inanimate object she looked at—that object being in itself real and single;—a book, a footstool, a work-box, would increase to twenty, or fifty, sometimes without *order* or arrangement, and at other times piled regularly one above another. Such ob-

jects deluded her in another way, by increasing in size, as she looked at them, to the most amazing excess,—again resuming their natural size—less than which they never seemed to become,—and again swelling out. *Locality*, over-excited, gave her the illusion of objects, which she had been accustomed to regard as fixed, being out of their places; and she thinks, *but is not sure*, that, on one occasion, a door and window in one apartment seemed to have changed places,—but, as she added, she might have been deceived by a mirror. This qualification gave us the more confidence in her accuracy, when, as she did with regard to all her other illusions, she spoke more positively. She had not hitherto observed a great and painful confusion in the visions which visited her, so as to entitle us to infer the derangement of *Order*. *Individuality, Form, Size, Weight, Colouring, Locality*, and *Number* only, seemed hitherto affected.

“For nearly two years, Miss S. L. was free from her frontal headaches, and—mark the coincidence—untroubled by visions, or any other illusive perceptions. Some months ago, however, all her distressing symptoms returned in great aggravation, when she was conscious of a want of health.¹ The pain was more acute than before along the frontal bone, and round and in the eyeballs; and all the organs there situated recommenced their game of illusion. Single figures of absent and deceased friends were terribly real to her, both in the day and the night, sometimes *coloured*, but generally coloured. She sometimes saw friends in the street, who proved phantoms when she approached to speak to them; and instances occurred where, from not having thus satisfied herself of the illusion, she affirmed to such friends, that she had seen them in certain places, at certain times, when they proved to her the clearest *alibi*. The *confusion* of her spectral forms now distressed her.—(*Order* affected). The oppression and perplexity was intolerable when figures presented themselves before her in inextricable disorder, and still

¹ “Constitutional irregularity would, it is very probable, explain the whole disorder.”

more when they changed—as with Nicolai—from whole figures to parts of figures—faces, and half-faces, and limbs, sometimes of inordinate size and dreadful deformity. One instance of illusive *disorder*, which she mentioned, is curious; and has the farther effect of exhibiting (what cannot be put in terms except those of) the derangement of the just perception of gravitation or equilibrium (*Weight*). One night as she sat in her bedroom, and was about to go to bed, a *stream* of spectres, persons' faces, and limbs, in the most shocking confusion, seemed to her to pour into her room from the window, in the manner of a cascade! Although the cascade continued apparently in rapid descending motion, there was no accumulation of figures in the room, the supply unaccountably vanishing after having formed the cascade. *Colossal* figures are her frequent visitors. (*Size*).

“Real but inanimate objects have assumed to her the form of animals; and she has often attempted to lift articles from the ground, which, like the oysters in the pot-house cellar, eluded her grasp.

“More recently, she has experienced a great aggravation of her alarms, for, like Nicolai, she *began* to hear her spectral visitors speak!—With Mr R. of Hull, the spectres always spoke. At first her crowds kept up a buzzing and indescribable *gibbering*, and occasionally joined in a loud and terribly disagreeable *laugh*, which she could only impute to fiends. These unwelcome sounds were generally followed by a rapid and always alarming advance of the figures, which often, on these occasions, presented very large and fearful faces, with insufferable glaring eyes close to her own. All self-possession then failed her, and the cold sweat of terror stood on her brow. Her single figures of the deceased and absent then began to gibber, and soon more distinctly to address her; but her terror has hitherto prevented her from understanding what was said.¹

¹ “We may here mention, that the phrenological explanations of the distressing affection which have been given Miss S. L., have had the happy effect of affording her much more composure when visited by her phantoms than she thought possible. She is still terrified with their speaking; but her mind, on the whole, is greatly eased on the subject.”

“ Of the other illusive perceptions of Miss S. L., we may mention *the sensation of being lifted up* and of *sinking down*, and *falling forward*, with the puzzling perception of objects off their perpendicular ; for example, *the room, floor and all, sloping to one side.* (*Weight*).

Mr Simpson concludes, by remarking “ how curiously the old-established phenomena of ghosts are *seriatim* explained by this case. White or grey ghosts—the *grey bodach* of *M^r Ivor* in *Waverley*,—result from excited *Form*, with quiescent *Colouring*, the transparent cobweb effect being colourless. Pale spectres and shadowy yet coloured forms, are the effect of partially excited *Colouring*. Tall ghosts and dwarf goblins are the illusions of over-excited *Size*. *Creusa* appeared to *Æneas* colossal in her size :—

‘ Infelix simulacrum atque ipseus umbra Creusæ,
Visa mihi ante oculos et nota major imago.’

“ The ghosts of *Ossian* are often colossal. Gibbering and speaking ghosts, with an unearthly confusion of tongues and fiend-like peals of laughter, as if the demons revelled, are illusions which many have experienced.”

The illusions of the English opium-eater are no longer a horrible mystery ; they are explained in Mr Simpson’s paper here quoted.

Dr Macnish, in the later editions of his work on sleep,¹ has given a chapter on spectral illusions, in which the foregoing theory is adopted, as the only one capable of explaining them. “ If the brain,” says he, “ be brought by internal causes, to a degree of excitement, which, in general, is the result only of external impressions, ideas not less vivid than sensations ensue ; and the individual has the same consciousness as if an impression were transmitted from an actual object through the senses. In other words, the brain, in a certain state, perceives external bodies ; and any cause which induces that state, gives rise to a like perception, independently of the usual cause—the presence of external bodies themselves. The chief of these internal

¹ *The Philosophy of Sleep*, by Robert Macnish ; 2d and 3d editions, chap. xv. See also his *Introduction in Phrenology*, p. 136.

causes is inflammation of the brain ; and, when the organs of the perceptive faculties are so excited—put into a state similar to that which follows actual impressions from without—the result is a series of false images or sounds, which are often so vivid as to be mistaken for realities. During sleep, the perceptive organs seem to be peculiarly susceptible of such excitement. In dreaming, for instance, the external world is inwardly represented to our minds with all the force of reality : we speak and hear as if we were in communication with actual existences. Spectral illusions are phenomena strictly analogous ; indeed they are literally nothing else than involuntary waking dreams.” Dr Macnish gives the following interesting account of a vision seen by himself. “ In March 1829, during an attack of fever, accompanied with violent action in the brain, I experienced illusions of a very peculiar kind. They did not appear except when the eyes were shut or the room perfectly dark ; and this was one of the most distressing things connected with my illness ; for it obliged me either to keep my eyes open or to admit more light into the chamber than they could well tolerate. I had the consciousness of shining and hideous faces grinning at me in the midst of profound darkness, from which they glared forth in horrid and diabolical relief. They were never stationary, but kept moving in the gloomy back-ground : sometimes they approached within an inch or two of my face ; at other times they receded several feet or yards from it. They would frequently break into fragments, which, after floating about, would unite—portions of one face coalescing with those of another, and thus forming still more uncouth and abominable images. The only way I could get rid of these phantoms, was by admitting more light into the chamber and opening the eyes, when they instantly vanished ; but only to reappear when the room was darkened or the eyes closed. One night, when the fever was at its height, I had a splendid vision of a theatre, in the arena of which Ducrow, the celebrated equestrian, was per-

forming. On this occasion, I had no consciousness of a dark back-ground like to that on which the monstrous images floated; but every thing was gay, bright, and beautiful. I was broad awake, my eyes were closed, and yet I saw with perfect distinctness the whole scene going on in the theatre—Ducrow performing his wonders of horsemanship—and the assembled multitude, among whom I recognised several intimate friends; in short, the whole process of the entertainment as clearly as if I were present at it. When I opened my eyes, the whole scene vanished like the enchanted palace of the necromancer; when I closed them, it as instantly returned. But, though I could thus dissipate the spectacle, I found it impossible to get rid of the accompanying music. This was the grand march in the opera of Aladdin, and was performed by the orchestra with more superb and imposing effect, and with greater loudness, than I ever heard it before; it was executed, indeed, with tremendous energy. This air I tried every effort to dissipate, by forcibly endeavouring to call other tunes to mind, but it was in vain. However completely the vision might be dispelled, the music remained in spite of every effort to banish it. During the whole of this singular state, I was perfectly aware of the illusiveness of my feelings, and, though labouring under violent headach, could not help speculating upon them and endeavouring to trace them to their proper cause. This theatrical vision continued for about five hours; the previous delusions for a couple of days. The whole evidently proceeded from such an excited state of some parts of the brain, as I have already alluded to. *Ideality, Wonder, Form, Colour, and Size*, were all in intensely active operation; while the state of the reflecting organs was unchanged. Had the latter participated in the general excitement, to such an extent as to be unable to rectify the false impressions of the other organs, the case would have been one of pure delirium.” To shew how little spectral illusions are dependent on sight, Dr Macnish adverts to the fact that the blind are frequently subject to them:—“A respected elderly gentleman,” says he, “a pa-

tient of my own, who was afflicted with loss of sight, accompanied by violent headaches and severe dyspeptic symptoms, used to have the image of a black cat presented before him, as distinctly as he could have seen it before he became blind. He was troubled with various other spectral appearances, besides being subject to illusions of sound equally remarkable ; for he had often the consciousness of hearing music so strongly impressed upon him, that it was with difficulty his friends could convince him it was purely ideal.”¹

There are persons who imagine themselves to be made of glass, and who refuse to sit down, or assume any position in which glass would not be safe, lest they should break their bodies in pieces ; others have conceived that some object was attached to their nose, or that some figure was impressed upon their forehead ; who in every other respect were sound in mind. Such aberrations appear to be fixed and permanent conceptions of a diseased nature, resulting from morbid and involuntary activity of the organs of the knowing faculties. The cure will be accomplished by removing the organic cause, and not by a logical demonstration that the object does not exist ; fitted perhaps to convince a sound understanding, but altogether inefficient for the removal of illusions springing from a diseased brain.

Another form of mental derangement, arising from internal excitement of the organs, is the tendency to involuntary and sometimes unconscious manifestations of the faculties. Some insane patients talk night and day to themselves ;² and in hysterical affections, the individual often alternately laughs and cries involuntarily. The last phenomena are explicable by the supposition of different organs becoming active and quiescent in turns, in consequence of

¹ The true theory of apparitions was acutely conjectured by Hobbes, Voltaire, Shenstone, and Hume ; but the late Dr Alderson of Hull was the first to *establish* that such illusions are the result of cerebral disorder, although this honour has been claimed by Dr Ferriar of Manchester. See “Notes, chiefly historical, on the Philosophy of Apparitions,” By Mr Robert Cox ; *Phren. Journ.* vol. viii. p. 538.

² See before, p. 143.

some irregular action in the brain. In Paris, Dr A. Combe saw a lady who, when just emerging from insensibility, occasioned by a fit of apoplexy, manifested the faculties of Wit and Imitation quite unconsciously, but with so admirable an effect, that her relations were forced into fits of laughter, mingled with floods of tears for her unhappy condition : On her recovery, she did not know of the exhibitions she had made. The organs of Wit and Imitation were large. Phrenology accounts for such facts in a simple and natural manner, by the effects of diseased activity of the organs.

DREAMING may now be analyzed. If the greater number of the organs remain inactive, buried in sleep, and if a few of them, from some internal excitement confined to themselves, become active, these will produce corresponding feelings, or conceptions, and their action being separated from that of the other organs, which, in the waking state, generally co-operate with them, the result will be the experience by the mind of various emotions and the creation of disjointed impressions of objects, circumstances, and events ; in short, all the various phenomena of dreams. Thus every circumstance which disturbs the organization of the body may become the cause of dreams : a heavy supper, by encumbering the digestive powers, affects the brain painfully by sympathy ; and hence the spectres and "chiméras dires" created by the dreaming fancy. Fever, by keeping up a morbid excitement in the whole system, sustains the brain in a state of uninterrupted action ; and hence the sleeplessness which attends the higher, and the disturbed dreams which accompany the lower, degrees of that disease. Thus also is explained another familiar fact relative to the mind. If, during day, we have been excessively engaged in any particular train of studies, it haunts us in our dreams. During day the organs of the faculties chiefly employed were maintained in a state of action, intense and sustained in proportion to the mental application. By a general law of the constitution, excessive action does not subside suddenly, but

abates by insensible degrees ;—on going to sleep, so much activity continues in the organ, that the train of ideas goes on ; till, after long action, it at last entirely ceases. The Reverend Mr Bedford of Bath told me, that one of his pupils, after a long repetition of Greek grammar, became ill and feverish. Next morning he asked him how he had slept. “ Very uncomfortably,” said the boy, “ for the curtains, and counterpane, and pillow (which were white) were all written over with Greek grammar.” “ But you should have closed your eyes,” said Mr Bedford.—“ That did me no good,” replied the boy, “ for I still saw the passages of the Greek grammar after my eyes were shut.” Mr Bedford has been blind for ten years. He says that he dreams with great vividness and pleasure of visible coloured objects, a proof that it is the brain which receives and retains the impressions of objects of sight. Mr Goodridge, architect in Bath, presented, as a competitor, plans for the new House of Commons ; four hundred apartments were required. The mental labour necessary to arrange so large a number of rooms, in suitable relations to the windows in the external elevations, to the stairs and passages, and to convenience, was very great. After going to bed, he continued in his dreams to go up stairs and down stairs, along passages, and into rooms innumerable, and his nights became almost as fatiguing as his days. He told me this anecdote himself, and stated that he was forced to desist from his exertions for a time, to allow his brain to recover. Spencer has said that,—

“ The things which day most minds, at night do most appear.”

In dreams, we are sometimes overwhelmed with terror, and cannot discover the object which occasions it. This may be accounted for, by supposing the organ of Cautiousness to be violently excited by some internal cause, while the organs of the intellectual faculties continue asleep. In other instances, we dream of seeing the most alarming or wonderful appearances without feeling any emotion. This seems to arise from several of the intellectual organs being awake, while those of

the sentiments remain dormant. A remarkable dream of this description is narrated in *The Phrenological Journal*, vol. ix. p. 278.

On inquiry I find, what indeed might have been anticipated *a priori*, that dreams in different individuals have most frequently relation to the faculties whose organs are largest in their brains. A friend, in whom Tune is large, and Language deficient, tells me that he has frequently dreamt of hearing and producing music, but very rarely of composing discourses, written or oral. Another gentleman, in whom Language is full, and Tune deficient, states that he never but once in his life dreamt of hearing a musical note, while many a laborious page he has imagined himself writing, reading, and speaking in his dreams; nay, he has repeatedly dreamt of conversing with foreigners in their own tongue, with a degree of fluency which he could never command while awake. In the same way, a person in whom Locality is large assured me, that he had very frequently dreamt of travelling in foreign countries, and enjoyed most vivid impressions of the scenery; while another, in whom that organ is small, never dreamt of such a subject. One friend, in whom Combativeness is large, told me that he had fought many a tough and long-contested battle in his dreams; while another, in whom that organ is moderate, stated that he had never dreamt of fighting but once, and that was when his imagination placed him in the hands of murderers whose heads he attempted to break with a poker, and wakened in terror at his own combative effort.

If, in persons of an active temperament, the reflective organs chiefly be exercised during day, it is not unusual for the organs of Form, Locality, and Colouring, to disport themselves in dreams. I have known examples of literary men and lawyers, who, in their dreams,

“ Flew to the pleasant fields travers’d so soft,
In life’s morning march when the bosom was young,”

and enjoyed scenery which they loved, but which their avocations prevented them from visiting in their waking hours.

A curious illustration of the effect of the predominating organs in determining the character of dreams, occurs in the case of Scott, who was executed in 1823, at Jedburgh, for murder. It is stated in his Life, that some years before the fatal event, he dreamt that he had committed a murder, and was greatly impressed with the idea. He frequently spoke of it, and recurred to it as something ominous, till at last it was realized. The organ of Destructiveness was large in his head, and so active, that he was an enthusiast in poaching, and prone to outrage and violence in his habitual conduct. This activity of the organ might continue during sleep, and then it would inspire his mind with destructive feelings, and the dream of murder would be the consequence. From the great natural strength of the propensity, he probably may have felt, when awake, an inward tendency to this crime; and, by joining this and the dream together, the strong impression left by the latter on his mind is easily accounted for.

I presume, although I do not know it as a fact, that persons in whom Cautiousness is small, and Hope and Benevolence large, will, when in health, generally enjoy brilliant and happy dreams; while others, in whom Cautiousness is very large, and Hope small, will be wading in difficulties and woe?

Mr Andrew Carmichael of Dublin, in "An Essay on Dreaming, including Conjectures on the Proximate Cause of Sleep,"¹ suggests the idea that sleep may be the chief occasion when the waste of substance in the brain is repaired by the deposition of new particles of matter. There is no direct evidence of the truth of this conjecture; but the brain, like every other part of the animal structure, is furnished with bloodvessels and absorbents, and is known to waste like them: that the waste should be repaired, therefore, is a fact of necessary inference; and Mr Carmichael conceives, that the period of sleep, when the mental functions are sus-

¹ *Tilloch's Phil. Mag.*, vol. liv. p. 252, 324; or *Transactions of the King and Queen's College of Physicians*, vol. ii. p. 48: Also Mr Carmichael's *Memoir of the Life and Philosophy of Spurzheim*, p. 91.

pended, is particularly suitable for this operation. Mr Carmichael's views have been controverted by Dr Macnish, chiefly on the following grounds. First, It is inconceivable that a natural and healthy deposition of new particles should cause a cessation of the functions of the brain : before such a deposition can take place, there must be an augmented circulation of blood through its vessels, and increased circulation implies increased activity of function ; besides, the circulation in the brain, in place of being augmented during sleep, is greatly diminished. Secondly, On Mr Carmichael's supposition, that the process of assimilation in the brain is the proximate cause of sleep, how are we to account for people being so easily awakened ? It is difficult to conceive the assimilative process to be so suddenly arrested or completed. Thirdly, Dreaming is inconsistent with the theory ; for assimilation must be supposed to take place in the whole brain at the same time, in which case the activity of one organ, while others are asleep, is impossible. Lastly, and above all, an inclination to sleep is felt immediately after taking food, and long before the chyle has reached the bloodvessels, by which it is deposited previously to assimilation.¹ To these arguments, Mr Carmichael has published, in the same volume,² a very ingenious reply.

The preceding view of the phenomena of dreaming gives a death-blow to the superstitious notion of warnings and supernatural communications being now made to the mind in sleep ; while it explains naturally the occasional fulfilment of dreams, as in the case of Scott.

Thus, the internal excitement of the intellectual organs produces conception ; the ideas conceived always bearing relation to the particular organs called into action. This excitement, when morbid and involuntary, produces fixed conceptions or ideas, which is a species of insanity ; and the same excitement taking place in some organs during sleep, while others remain in a state of inaction, produces dreams.

¹ *Phren. Journ.* vol. ix. p. 175-181.

² *Ibid.* p. 318.

When, during periods of wakefulness, the excitement is inordinately great, the conception of apparitions ensues. Hence these phenomena are all connected in their cause, however dissimilar in their external appearance.

IMAGINATION. The metaphysicians frequently employ the words Imagination and Fancy, but neither of them is synonymous with the phrenological term Ideality. *Imagination* is defined to be, "The power of forming ideal pictures; the power of representing things absent, to one's self." In this sense, which I hold to be the primitive and most correct, there is scarcely a shade of difference between Conception and Imagination. Locality, Size, Colouring, and Individuality, being active by command of the will, call up the features of a landscape, and we may then be said to *conceive* it. If to this act the word *imagine* were applied, and we were said to *imagine* a landscape, the expression would not be felt as improper. Mr Stewart, therefore, if he had confined Imagination to the limits here pointed out, namely, to "the power of representing things absent, to one's self," would not have been censurable for doubting if it were a faculty distinct from conception, which he has ranked as such. At the same time, his notion that "Imagination is not the gift of nature," but formed by "particular habits of study or of business," is even, on this supposition, erroneous; for there is no mode of action of the mind which is not the gift of nature, however much it may be improved by judicious exercise. There is, however, a difference between Conception and Imagination. The former is the cool and methodical representation of things absent, as they exist in nature, to one's self. Imagination is the *impassioned representation* of the same things—not merely in the forms and arrangements of nature, but in new combinations formed by the mind itself. In Phrenology, therefore, Conception is viewed as a particular kind of activity of the knowing and reflecting faculties, and higher in degree than Perception; while Imagination is regarded as a *third* kind of activity,

still higher in degree than Conception. Imagination consists in the formation of intense, glowing, forcible conceptions, proceeding from great activity of the intellectual faculties, not confined to real circumstances, but embracing as many new combinations as they are capable of forming. According to this view, Imagination may be manifested without ornament or illustration; and this is the case when such faculties as Form, Locality, Colouring, and Causality act by themselves, unaided by Ideality and Comparison. Hence, the assertion of D'Alembert,¹ that "metaphysics and geometry are of all the sciences belonging to reason those in which imagination has the greatest share," is quite intelligible, and may have been seriously made. If, in that philosopher, Form, Size, Locality, Number, and Causality—the faculties which go to constitute a genius for mathematics and metaphysics—were very active, he would be conscious of imagining, with great interest and vivacity, many new relations of space, magnitude, and causation; and, looking to the usual definitions of Imagination, he was entitled to designate these acts as operations of that faculty.

The metaphysicians attach a different and more extensive meaning to the word Fancy, and, according to my understanding of the functions ascribed by them to this supposed power, it embraces a wider range than Imagination, and necessarily implies ornament and illustration. Hence Comparison, and probably Ideality and Wonder, must be combined with the knowing and reflecting faculties to constitute Fancy. The latter faculties will call up ideas of objects as they exist in nature, Ideality will enable them to invest them with beauty, Wonder with extraordinary attributes, Comparison will cull similes and trace analogies throughout the boundless fields of space, and the intellectual compound may be designated as the creation of Fancy. The significations commonly attached to the words Imagination and Fancy, are, however, by no means precise. The conceptions of the knowing and reflecting faculties, illustrated and diversified

¹ Stewart, *Prelim. Dissert. to Sup. Encyclop. Brit.* Part I. p. 6.

by Comparison alone, are frequently designated as Fancy ; and in this sense an author or orator may be said to possess a brilliant fancy, although Ideality be by no means a predominant organ in his head. On the other hand, many passages in Milton's writings are the products of the knowing faculties and Causality, imbued with intense Ideality, in which Comparison supplies few illustrations ; nevertheless they are said to be highly imaginative, and certainly are so. Thus, in judging of genius, Phrenology teaches us to be discriminative in our analysis, and to avoid the error of inferring the presence of *all* the powers of the mind in an eminent degree, because one great talent is possessed.

Improvisatori are able, without study or premeditation, to pour out thousands of verses *impromptu*, often of no despicable quality, upon any subject which the spectators choose to suggest. I have not seen any of these individuals ; but Phrenology enables us to conjecture the constituent elements of their genius. In the first place, we may infer that they possess a high nervous or sanguine temperament, communicating great activity to the brain ; and, in the next place, Language, Individuality, Eventuality, Comparison, Tune, Time, and Ideality, all large. The great and uncommon activity supposed, would produce the readiness of conception and warmth of feeling which are the first requisites ; large endowment of Individuality and Eventuality would supply facts and incidents necessary to give substance and action to the composition ; Comparison would afford similes, metaphors, and illustrations ; Ideality would contribute elevation, Tune and Time give rhythm, and Language afford expression to the whole ideas so formed and combined. Observation only can determine whether these conjectures be correct ; but the causes here assigned appear to be adequate to the effects—and this, in a hypothesis, is all that can be expected.

MEMORY also is a mode of action of the faculties.¹ In most individuals, the mind has no power of calling up, into fresh existence, the emotions experienced by means of the propensities and sentiments, by merely willing them to be felt, and hence we hold these faculties not to possess Memory. Reasons have been assigned for this opinion on page 193. The ideas, however, formed by the knowing and reflecting faculties, can be reproduced by an act of recollection, and these powers are, therefore, said to have Memory. Memory is thus merely a mode of action of the knowing and reflecting faculties. I have said that Conception and Imagination also result from the internal action of these organs; and the question naturally arises, In what respect does Memory differ from them? The difference appears to be this. In Conception and Imagination, new combinations of ideas are formed, not only without regard to the time or order in which the elementary notions had previously existed, but even without any direct reference to their having formerly existed at all. Memory, on the other hand, implies a new conception of impressions previously received, attended with the idea of past time, and consciousness of their former existence; and it generally follows the order in which the events happened.

Each organ enables the mind to recall the impressions which it served at first to receive. Thus, the organ of Tune will recall notes formerly heard, and give the me-

¹ Mr H. C. Watson observes, "I suspect that Memory ought not to be mixed up with the other three modes of manifestation here spoken of, (Perception, Conception, and Imagination), but that it is much more closely allied to consciousness and the sense of resemblance. Some injuries and diseased states appear very materially to derange consciousness, memory, and the sense of resemblance, while the powers of perception, conception, and imagination, are comparatively intact." *Phren. Journ.* vol. x. p. 498. See also Mr Chenevix's remarks in the *Foreign Quarterly Review*, No. iii. p. 45. I do not understand Mr Watson here to question the doctrine that each intellectual organ serves to recall the objects which it is its function to perceive.

memory of music. Form will recall figures previously observed; it will give the memory of persons, pictures, and crystals, and will produce a talent for becoming learned in matters connected with such objects. Individuality and Eventuality large will confer memory for objects and events, and render a person skilled in history, both natural and civil. A person in whom Causality is powerful, will possess a natural memory for metaphysics. Hence there may be as many kinds of memory as there are knowing and reflecting faculties; and an individual may have great memory for one class of ideas, and very little for another: George Bidder had an almost inconceivable power of recollecting arithmetical calculations, while in memory of history or languages he did not surpass ordinary men. As the recollection of objects and occurrences is commonly meant, in popular language, by a great memory, individuals so gifted will generally be found to possess a good development of Individuality, Eventuality, and probably of Language.

There appears to be a quality of brain which gives retentiveness to memory, in consequence of which one individual will retain impressions much longer than another, although the size and combination of their organs be the same. It is said that Sir Walter Scott possessed this characteristic in a high degree; but the cause of it is unknown. This fact does not invalidate the theory of Memory now given; because in every individual, the power of retaining one kind of impressions is greater than that of retaining another, and this power bears a uniform relation to the size of the organs.

The celebrated Cuvier affords another striking illustration of this remark. He possessed the quality of retentiveness, the cause of which is unknown, in an extraordinary degree; but the power was strongest in his largest intellectual organs. De Candolle describes his mental qualities as follows: "His range of knowledge was surpassingly great. He had all his life read much,—seen much,—and never forgotten any thing. A powerful memory, sustained and directed by

sound judgment and singular sagacity, was the principal foundation of his immense works and his success. This memory was particularly remarkable in what related to forms, considered in the widest sense of that word; the figure of an animal, seen in reality or in drawing, never left his mind, and served him as a point of comparison for all similar objects. The sight of a map, of the plan of a city, seemed sufficient to give him an almost intuitive knowledge of the place; and, among all his talents, that memory which may be called *graphic*, seemed most apparent: he was consequently an able draughtsman, seizing likenesses with rapidity and correctness, and had the art of imitating with his pencil the appearance of the tissue of organs, in a manner peculiarly his own, and his anatomical drawings were admirable."¹

The knowing and reflecting organs, were both large in his head, and, judging from his portraits, his temperament seems to have been nervous, or nervous and sanguine.

Dr Watt seems to have anticipated, by a very acute conjecture, the real philosophy of Memory. He says: "It is most probable that those very fibres, pores, or traces of the brain which assist at the first idea or perception of any object, are the same which assist also at the recollection of it; and then it will follow, that the memory has no special part of the brain devoted to its own service, but uses all those parts in general which subserve our sensation, as well as our thinking and reasoning powers."² This conjecture coincides exactly with Mr Hood's case, of the person in Kilmarnock, who, although able to articulate, lost all power of recollecting arbitrary signs, and, with a sound judgment and clear understanding, forgot, through disease, his own name and the names of every person and thing with which previously he was most familiar. This could be accounted for only by the supposition that the organ of Language had lost the power of internal activity at command of the will, while the organs of

* ¹ *Edinburgh New Philosophical Journal*, vol. xiv. No. 28.

² *The Improvement of the Mind*, ch. xvii.

the other intellectual powers remained entire. The fact, also, of the memory failing in old age, before the judgment is impaired, is accounted for on the same principle. Age diminishes the *susceptibility* and *activity* of the organs; and hence they are unable to receive and to reproduce impressions with the same vivacity as in youth. It is known, that, after the mind has become dead to the recollection of recent occurrences, it can distinctly recall the impressions of early years. These were imprinted at a time when the whole system was extremely susceptible, and subsequently have been often recalled: and hence perhaps it is that the organs are capable of resuming the state corresponding to them, after they have ceased to be capable of retaining impressions from events happening when their vigour has decayed. Judgment is an employment of the faculties on present objects, and does not require the same degree of internal and spontaneous excitement for its exercise.

The doctrine that memory is only a kind of activity of the faculties, is illustrated by the phenomena of diseases which particularly excite the brain. Sometimes, under the influence of disease, the most lively recollection of things will take place, which had entirely escaped from the memory in a state of health. "A most remarkable example of this kind occurred some years ago at St Thomas's Hospital. A man was brought in, who had received a considerable injury of the head, but from which he ultimately recovered. When he became convalescent, he spoke a language which no one about him could comprehend. However, a Welsh milk-woman came one day into the ward, and immediately understood what he said. It appeared that this poor fellow was a Welshman, and had been from his native country about thirty years. In the course of that period, he had entirely forgotten his native tongue, and acquired the English language. But when he recovered from his accident, he forgot the language he had been so recently in the habit of speaking, and acquired the knowledge of that which he had ori-

ginally acquired and lost!"¹ Such a fact as this is totally inexplicable, on any principle except that of the existence of organs by means of which the faculties are manifested: for it could not be the mind itself which was affected, and its faculties impaired by the fever, or which recovered long lost knowledge by the influence of disease. At the same time, the manner in which such an effect is produced, is entirely unknown. Old people, when feeble, often relapse into the use of the dialect of their youth.

The case of which the following is an abstract, was communicated by Dr Dewar to the Royal Society, and, although highly interesting, is at present inexplicable.

In a "Report on a communication from Dr Dyce of Aberdeen, on Uterine Irritation, and its effects on the female constitution,"² Dr Dewar states, that "It is a case of mental disease, attended with some advantageous manifestations of the intellectual powers; and these manifestations disappeared in the same individual in the healthy state. It is an instance of a phenomenon which is sometimes called *double consciousness*, but is more properly a *divided consciousness*, or *double personality*, exhibiting in some measure two separate and independent trains of thought, and two independent mental capabilities, in the same individual; each train of thought, and each capability, being wholly dis severed from the other, and the two states in which they respectively predominate subject to frequent interchanges and alternations."

The patient was a girl of sixteen; the affection appeared immediately before puberty, and disappeared when that state was fully established. It lasted from the 2d of March to the 11th of June 1815, under the eye of Dr Dyce. "The first symptom was an uncommon propensity to fall asleep in the

¹ Tupper's *Inquiry into Gall's System*, p. 33; Good's *Study of Medicine*, 2d edit. vol. iv. p. 190; and Article DELIRIUM, by Dr Pritchard, in *Cyclop. of Prac. Med.* vol. i. p. 506.—Dr Pritchard adds to his account of the case, that "this statement, which was first given by Mr Tupper, has been confirmed to the writer of this article by a personal witness."

² Read to the Royal Society in February 1822.

evenings. This was followed by the habit of *talking* in her sleep on these occasions. One evening she fell asleep in this manner, imagined herself an Episcopal clergyman, went through the ceremony of baptizing three children, and gave an appropriate *extempore* prayer. Her mistress took her by the shoulders, on which she awoke, and appeared unconscious of everything, except that she had fallen asleep, of which she shewed herself ashamed. She sometimes dressed herself and the children while in this state, or, as Mrs L. called it, 'dead asleep;' answered questions put to her, in such a manner as to shew that she understood the question; but the answers were often, though not always, incongruous." One day, in this state, she "set the breakfast with perfect correctness, with her eyes shut. She afterwards awoke with the child on her knee, and wondered how she got on her clothes." Sometimes the cold air awakened her, at other times she was seized with the affection while walking out with the children. "She sang a hymn delightfully in this state, and, from a comparison which Dr Dyce had an opportunity of making, it appeared incomparably better done than she could accomplish when well."

"In the mean time, a still more singular and interesting symptom began to make its appearance. *The circumstances which occurred during the paroxysm were completely forgotten by her when the paroxysm was over; but were perfectly remembered during subsequent paroxysms;*" and it is on this account that I have introduced the case under the head of Memory. "Her mistress said, that when in this stupor on subsequent occasions, she told her what was said to her on the evening on which she baptized the children." Other instances of this kind are given. "A depraved fellow-servant, understanding that she wholly forgot every transaction that occurred during the fit, clandestinely introduced a young man into the house, who treated her with the utmost rudeness, while her fellow-servant stopped her mouth with the bed-clothes, and otherwise overpowered a vigorous resistance which was made by her, even during the influence of her

complaint. Next day she had not the slightest recollection even of that transaction, nor did any person interested in her welfare know of it for several days, till she was in one of her paroxysms, when she related the whole facts to her mother. Next Sunday she was taken to the church by her mistress, while the paroxysm was on her. She shed tears during the sermon, particularly during the account given of the execution of three young men at Edinburgh, who had described, in their dying declarations, the dangerous steps with which their career of vice and infamy took its commencement. When she returned home, she recovered in a quarter of an hour, was quite amazed at the questions put to her about the church and sermon, and denied that she had been in any such place; but next night, on being taken ill, she mentioned that she had been at church, repeated the words of the text, and, in Dr Dyce's hearing, gave an accurate account of the tragical narrative of the three young men by which her feelings had been so powerfully affected. On this occasion, though in Mrs L——'s house, she asserted that she was in her mother's."

Drs Dyce and Dewar do not give any theory to account for these very extraordinary phenomena. They mention that the girl complained of confusion and oppression in her head at the coming on of the fits; and that after the periodical discharge had been fairly established, the whole symptoms disappeared. On 28th May 1838, I saw a similar case at Birmingham, that of Mary Parker, aged 16, who, during the three previous years, had exhibited similar phenomena. See *Phren. Journ.*, vol. xi. p. 604.

We are unable phrenologically to throw more light on these cases than the gentlemen who have reported them have done; and the only conclusion which seems to flow from them is, that, before memory can exist, the organs must be affected in the same manner, or be in a state analogous to that in which they were when the impression was first received. This inference is supported by several other facts. Dr Abel informed me of an Irish porter to a ware-

house, who, when sober, forgot what he had done when drunk ; but, being drunk again, recollected the transactions of his former state of intoxication. On one occasion, being drunk, he had lost a parcel of some value, and in his sober moments could give no account of it. Next time he was intoxicated he recollected that he had left the parcel at a certain house, and there being no address on it, it had remained there safe, and was obtained on his calling for it. The same phenomena present themselves in the state of somnambulism, produced by animal magnetism. In the works on this subject, it is mentioned, and the fact has been confirmed to me by a very intelligent friend who has observed it in Paris, that a person who is magnetized so as to produce the magnetic sleep termed somnambulism, acquires, like the girl in Aberdeen, a new consciousness and memory ; he does not recollect the transactions of his ordinary state of existence, but acquires the power of speaking and of thinking in his induced state of abstraction from the external world. When this state has subsided, all that passed in it is obliterated from the memory, while the recollection of ordinary events is restored. If the magnetic state be recalled, memory of the circumstances which formerly happened in that state is restored ; and thus the individual may be said to live in a state of divided consciousness. In this country, the doctrine of animal magnetism is treated with the same contempt which was formerly poured on Phrenology. I am wholly unacquainted with its merits ; but several eminent French physicians entertain a favourable opinion of them,¹ and the circumstance now stated, of alternating memory and forgetfulness, not only is mentioned in the books on this subject which I have consulted, but has been certified to me as true, by a gentleman whose understanding is too acute to allow me to believe that he was deceived, and

¹ See Mr Colquhoun's translation of the Report of the Committee of the Royal Academy of Sciences on Animal Magnetism ; Georget *De la Physiologie du Système Nerveux*, tome i. p. 267 ; and *The Cyclopædia of Practical Medicine*, article SOMNAMBULISM.

whose honour is too high to admit of his deceiving others. These facts cannot at present be accounted for in a satisfactory way; but by communicating a knowledge of their existence, attention will be drawn to them, and future observations and reflection may ultimately throw light upon the subject.

Mr Hewett Watson has published a valuable essay on the peculiarities of memory, in the 29th number of *The Phrenological Journal*.¹ It is unphilosophical, he remarks, to use such phrases as *a good memory* or *a great memory*, these expressions being susceptible, of very different interpretations. With the view of drawing the attention of phrenologists to the necessity of exactness in their descriptions, he specifies some of the principal varieties of memory, throwing out at the same time suggestions as to the conditions on which they depend. "For the more easy illustration," says he, "it will be convenient to distinguish the varieties of memory into two leading subdivisions, which may be termed 'Simple Memory,' and 'Memory by Association.' Simple memory is that wherein the idea of a sound, colour, object, or event appears to recur directly and spontaneously; as, for instance, having once seen a house or a tree, and the idea or mental impression returning afterwards, we are then said to remember it. Memory depending on association is indirect, and may be exemplified by the fact that we can scarce think of the summer sky, or the roses that bloom beneath it, without immediately remembering the concave form and blue tint of the former, or the peculiar shape and blushing dyes of the latter. The inseparable connection that comes to be established between the arbitrary sounds and shapes used in speech and writing, and various mental ideas, so that the mere sound or sight of a word inevitably recalls its appropriate idea, is another familiar illustration of memory by association. Such associations vary from the closest possible approximation with simple memory to the most remote, incongruous, and artificial associations that exist.

¹ Vol. vii. p. 212.

“To commence with Simple Memory. One of the most striking varieties entitled to be ranked in this division, is that wherein an individual is capable of remembering a *great number* of ideas, whether they be chiefly of shapes, sounds, objects, colours, or whatever else. The remembrance of them may be lasting or transitory; it may be orderly or without arrangement; the individual may be rapid or slow in reproducing impressions previously formed. Such a memory, in short, may be indefinitely varied in every other respect, excepting that named as its distinguishing mark, viz. the multiplicity of ideas remembered. I have seen several individuals exhibiting a memory of this kind, but varying greatly among themselves in the duration, clearness, readiness, and other peculiarities of the ideas remembered. It is this variety which is commonly meant by the frequent expressions ‘a good’ or ‘a great memory,’ although by no means invariably so. It appears essential to attaining a first rank in most departments of science and literature, and is the variety which led Gall to the discovery of the intellectual organs, the condition on which it depends seeming to be large organic development. They who take in and remember the greatest number of ideas at once, whether the same ideas be remembered for a long period, or be shortly supplanted by others, have, *cæteris paribus*, the largest organic development. I have observed in botanists, having Language and Individuality but moderately developed, the power of remembering for a long period, and with accuracy, a limited number of plants, their names and peculiar distinctive characteristics, as, for instance, those of a particular garden, district, or country; but on expanding their range of observation, they forget the former, apparently from a difficulty of retaining a multiplicity of ideas in a small organ. Others, on the contrary, will write systems embracing the whole of the vegetable kingdom, which implies an amount of individual knowledge almost incomprehensible to a small development. The mark of Sir James Smith, whose principal botanical skill lay in a knowledge of the various names

which botanists and others had, at different periods, applied to the same plant, shews Language to have been large, and, in consequence, he remembered many names. Individuality and Form are both well developed, but these two organs I have seen relatively superior in some of the best *specific* botanists of Britain, who remember the plants themselves better than their names. This variety of memory would be appropriately distinguished by the epithet *extensive*. As, however, it depends essentially on large organic development, which scarcely any person possesses in every faculty, this memory is always more or less partial, that is, limited in respect to the kind of ideas remembered ; so that, in order to characterize it with precision, it would be necessary to say, an extensive memory of words, of colour, of sounds, or whatever else it might happen to be. Many persons mistake the limit in kind for one of degree only, and lament in general terms their deficiency of memory, when in reality they possess an extensive memory for one range of ideas combined with a limited memory for another ; the deficiency, being most felt by the inconvenience it occasions, is taken as the general criterion. Exercise seems to have less influence on this variety than it has over others presently to be mentioned, probably more influencing the direction than the quantity of ideas remembered. Linnæus, Sheridan, Newton, Johnson, Cuvier, and Sir Edward Coke, may furnish examples of the extensive memory, and that chiefly in one particular range or direction.

“A second variety of memory, is that of men who are capable of remembering what they see, hear, or do, *during a very long period* ; their mental impressions appear to bid defiance to time, and to bear its daily attritions almost without change. Whether the subjects remembered be few or many, and of whatever kind or nature, still mental images of them once formed remain deep and distinct. Individuals endowed with this variety of memory in its highest degree, will often converse nearly as easily and correctly of occurrences years gone by, as others do of those which happened

but a week before. There are boys who will learn their school tasks with ease and rapidity, but just as easily and rapidly forget them; the lesson which was perfect last week, is to-day a dim and scarce perceptible outline of something that has once been, but is now almost effaced from the soft-moulded tablets of memory.

“On the other hand, we may find some of their school-fellows, whose tasks are the same, whose instructions are scarce in the slightest degree different, yet in this respect attended with the most dissimilar results. The task of last week or month is nearly as fresh in memory as though it had been learned but yesterday, and they wonder how others *can* forget so quickly, while these in turn are astonished that such retentiveness of memory can exist in any one. It seems yet an unsolved problem on what organic peculiarity this depends. That it is not attributable to size, or at least to size alone, every day's experience must assure us: and all that can at present be suggested in regard to it is, that *quality* rather than *quantity* of brain is the condition whereon it is dependent. It seems to be almost invariably accompanied by a degree of slowness in action, a want of that rapidity in the flow of ideas characteristic of the next variety to be mentioned. The slowness and tenacity may perhaps depend on the same peculiarity in the composition or quality of brain, the retentiveness of former ideas being connected with the slowness in acquiring new ones. On reading this to the Phrenological Society, a case was mentioned of a gentleman who, after learning to repeat long passages in a short space of time, found that he very soon forgot them, and that, when acquired with more slowness, they were long remembered.¹ It would appear from this, that the slowness in acquiring ideas is an antecedent to retentiveness; we are

¹ Dr Abercrombie, in his work on the Intellectual Powers, p. 100, mentions the case of an actor, who, on an emergency, committed his part to memory with surprising quickness, but in a very short time completely forgot it. Those parts, on the other hand, which he learned with slowness and deliberation, were accurately retained for many years.

scarcely authorized to say a *cause*, for both the one and the other may, and most likely do, depend on some (general or temporary) constitutional condition checking rapidity. The epithet *retentive*, would pretty correctly designate this variety of memory, and distinguish it from the former, with which it may or may not be combined. I have noticed it in men with a limited, as well as in those who possess an extensive memory; but, *cæteris paribus*, it seems most marked in such individuals as engage in the smallest variety of pursuits; whether it is an effect or a cause of uniformity in taste and pursuit may admit of doubt. The inhabitants of the country seem to remember with more tenacity than such as live in large towns; and certainly they are more apt to imbibe ideas with slowness and deliberation. Joined with an extensive memory, it constitutes the man of knowledge, and is therefore an essential element in forming a scientific character, but will scarcely make a witty or shewy one. Joseph Hume, Julius Cæsar, and perhaps Napoleon, may be cited as examples of it.

“ A third variety of Simple Memory is characterized by the rapidity with which previous ideas are reproduced in the mind. One after another, or one dozen after another dozen, previous thoughts and impressions are renewed, and come floating athwart the mental eye in perpetual changeability and succession. They may arise in a regular, connected, and systematic series, or be poured forth in the most mixed and heterogeneous assemblages, like the multitudinous *olla podrida* of a masquerade, or the endlessly varied hues and objects of an extensive landscape. Rapidity of ideas is the essential character of this modification. Whether such ideas be correct or erroneous, limited or general, connected or disordered, seems to be determined by other conditions different from those on which depends the mere quickness of their reproduction. . . . Large Language and Individuality with great rapidity, tend to promote punning, and that style of wit designated as ‘good things,’ ‘apropos remarks,’ ‘clever hits,’ &c., which I have seen greatly manifested when the

organ called Wit has been of very moderate development. It is perhaps this rapidity of memory occurring in cases of deficient development of Concentrativeness that causes what is commonly termed 'far-fetched wit,' or that conjunction of widely dissimilar and unrelated ideas called up by rapidity unrestrained by concentrated action. Rapidity of memory is probably influential in determining to the production of poetry, being evinced in the variety of its imagery, and what one of the fraternity has well exemplified in the expression 'thronging fancies.' Rapidity in excess, implying a perpetual transition of ideas, incapacitates for science; hence we rarely if ever find first rank in science and poetry, or science and wit, in the same person. Intermediate gradations may unite both in nearly equal degree. In noticing the former variety, I had suggested the rarity, if not incompatibility, of the rapid and retentive memories co-existing in a great degree; but was informed on reading the remark, that Professor Mezzofante of Bologna combines both rapidity and retentiveness of verbal memory. The nervous temperament seems instrumental in giving this quality of brain, or perhaps might with more correctness be regarded as the effect; but it is certainly not peculiar to the dark varieties of that temperament; some of the most striking examples of rapid memory I have met with occur in persons of light complexion. An appropriate mode of distinguishing this modification of memory from those previously mentioned, would be by attaching to it the epithet *rapid*. Miss Pratt, quoted in the phrenological works as an example of large Individuality, may be cited as an instance of rapid combined with extensive memory of objects and occurrences.

"Nearly allied to, but by no means always co-existent with, the rapid memory, is *readiness* of memory, or the power of immediately directing it to any given subject. There are men of considerable rapidity and diversity of ideas, who, if suddenly asked the simplest question concerning any matter not just then occupying their thoughts, find great difficulty in turning the current of their ideas into a new channel, or

opening a new spring. They thus seem, both to themselves and others, to be remarkably deficient in memory. Inequality of development probably tends to increase this peculiar defect, but it appears to me that Concentrativeness and Secretiveness, one or both, are also concerned. . . . I have but few observations on the development of individuals whose memory presents this modification, but it seems in perfection when large Secretiveness, Concentrativeness, and the anterior lobe, especially Individuality, are combined with rapidity, and to be proportionally injured by the abduction of any one of these requisites. I have seen an instance of this promptness of memory in a case where the knowing organs, particularly Individuality and Eventuality, with Secretiveness, were large, Concentrativeness and the reflecting organs rather above moderate, with a medium degree of rapidity and retentiveness of memory. The epithet *ready* or *prompt* may designate this variety of memory, which probably occurred in Burke, Pitt, Curran, and Sheridan.

“To the preceding peculiarities of memory, there yet remains to be added another, which, from its influence over memory, by association, may be viewed as the transition and connecting link between the two artificial divisions here made. I mean partial memory, or that limited to particular ranges of ideas. The connection between partial memory and proportionate development of the cerebral organs is so completely one of the foundation-stones of Phrenology, that it must be quite unnecessary to say any thing about it here; but we must never lose sight of the fact, that partial memory dependent on this cause, is exhibited only in the *nature* of the ideas, as those of colour in contradistinction to shape, or shape in opposition to dimensions, and not merely in the peculiar direction.”

JUDGMENT, in the metaphysical sense, belongs to the REFLECTING faculties alone. The knowing faculties, however, may also be said to judge; the faculty of Tune, for example, may be agreeably or disagreeably affected, and in this

way may judge of sounds : but Judgment, in the proper acceptance of the word, is a perception of adaptation, of relation, of fitness, or of the connexion between means and an end, and belongs entirely to the reflecting powers. These, as well as the knowing faculties, have Perception, Memory, and Imagination. Causality, for example, *perceives* the relation of cause and effect, and also *remembers* and *imagines* that relation, just as Form perceives, remembers, and imagines the shapes of objects. Judgment is the decision of the reflecting faculties upon the feelings furnished by the propensities and sentiments, and upon the ideas furnished by the whole intellectual faculties. This I conceive to be the strictly phrenological analysis of Judgment; but this term, in the popular sense, has a more extensive signification. It is a common observation to say of an individual, that he possesses an acute or even profound intellect, but that he is destitute of judgment. This apparent paradox may be explained in two ways. First : by “an acute intellect,” is frequently meant a great but limited talent, which may be referred to some of the knowing faculties. Thus, a person may be distinguished for ability in mathematics or natural history, and not be eminent for judgment, in the stricter sense of the word. There is, however, a second explanation, which is preferable. To judge of the line of conduct proper to be pursued in the affairs of life, it is necessary to *feel* correctly, as well as to reason deeply ; or rather, it is *more* necessary to feel rightly than to reflect. Hence, if an individual possess very powerful reflecting faculties, such as Lord Bacon enjoyed, and be deficient in Conscientiousness, as his Lordship seems to have been, he is like a fine ship wanting a helm, liable to be carried from her course by every wind and current. The reflecting faculties give the power of thinking profoundly, but Conscientiousness, and the other sentiments, are necessary to furnish correct feeling, by which practical conduct may be regulated. Indeed, Lord Bacon affords a striking example how poor an endowment intellect,—even the most transcendent,—is, when not accompanied by upright sentiments.

That mind which embraced, in one comprehensive grasp, the whole circle of the sciences, and pointed out, with a surprising sagacity, the modes in which they might best be cultivated—that mind, in short, which anticipated the progress of the human understanding by a century and a half—possessed so little *judgment*, so little of sound and practical sense, as to become the accuser, and even defamer of Essex, his early patron and friend ; to pollute the seat of justice by corruption and bribery ; and to stoop to the basest flattery of a weak king, all for the gratification of a contemptible ambition. Never was delusion more complete. He fell into an abyss of degradation from which he never rose ; and to this day the darkness of his moral reputation forms a lamentable contrast to the brilliancy of his intellectual fame. There was here the most evident defect of *judgment* ; and with such reflecting powers as he possessed, the source of his errors could lie only in the sentiments, deficiency in some of which prevented him from *feeling* rightly, and from comprehending the degradation attendant on immorality.

In common life, the effect of the feelings in originating opinion, is by far too little attended to. We frequently hear persons carrying on angry disputations, with a view to convince each other's understandings ; when, in fact, the cause of their difference lies in a feeling : If *it* could be made the same in both, no disagreement would exist. It is common in such cases to say, " My sentiments are entirely different from yours ;" a form of expression which is strictly philosophical, and harmonizes with the explanation now given : but the parties do not perceive that a " sentiment," in the strict sense, or in popular language a " feeling," cannot be communicated by *argument* ; and hence they often maintain the controversy by an address to the understanding alone, and generally with no satisfactory result. If, on the other hand, two persons meet, whose propensities and sentiments harmonize, their " sentiments," in the popular sense, generally coincide, although, in the depth of their intellectual powers, there may be considerable disparity. In estimating,

therefore, the degree of sound and practical judgment for the affairs of life, the good sense or mother-wit, of any individual, we should not confine our attention to the forehead alone, under the notion that it exclusively is the seat of judgment ; but look first to the temperament, that we may judge of the activity of the brain, and next at the combination of organs ; for we shall invariably find sound sense to be the accompaniment of an equable development of all the organs, those of the moral sentiments and intellect rather predominating. There are then no over-excited and no defective powers ; no desires assume an undue ascendancy, and no emotions are so feeble as not to be adequately experienced. This combination is rare, and hence high practical sense is more uncommon than great partial talent. A person was pointed out to me as possessing the forehead of an idiot, who yet had conducted himself with remarkable prudence and success in trade, and, by his estimable qualities, had gained the esteem of the little circle in which he moved. On examination, I found a fine nervous and sanguine temperament, and a forehead greatly retreating indeed but with a full development of the knowing organs ; and, on turning to the region of the propensities and sentiments, the former were found in fair proportion, with an excellent development of the latter. Conscientiousness, Veneration, Benevolence, Love of Approbation, Adhesiveness, and Cautiousness, were all large ; and the sources of his prudence, good sense, and amiable qualities, were at once apparent. To shew that Phrenology and the head were not at variance, I inquired into his powers of logical or profound argumentation ; when his friend said, that although he was fond of reading, his acquaintances were surprised that he never learned the meaning of a great many plain words ; and on asking what these were, I found them to be abstract terms and expressions significant of ideas formed by Causality and Comparison. The individual in question not only could not reason consecutively, but in ordinary discourse misapplied, and seemed

not to understand, the terms now adverted to. This was exactly what a phrenologist would have predicted.

In describing, therefore, the effect of the reflecting faculties in ordinary life, I would say that the propensities and sentiments furnish the chief desires which prompt to action, and the feelings which regulate conduct ; while reflection, without being able to alter their nature, judges of the impulses to action communicated by them—taking in an extent of view, greater or less, in proportion to the size of the intellectual organs. The intellect becomes acquainted with the whole mental faculties and their desires, with the external world, and with the relations subsisting between it and the mind, and judges of the means by which the desires may obtain gratification, and also of the consequences of indulgence : it presents a prospect of good or evil as the ultimate result, and thus constitutes the regulating and directing power. The influence of the propensities and sentiments in biassing the judgment may be thus explained : If Cautiousness be excessively large, and Hope small, this combination will present dismal forebodings to the mind ; and the understanding will not be able to alter the feelings so as to render cheery and brilliant, scenes which they tinge with melancholy and gloom. If Hope be very large, and Cautiousness very small, then the most delusive anticipations of felicity will be suggested, and the understanding will see objects under this impression. If, again, both Cautiousness and Hope be large, each will furnish its own emotions on the contemplation of external objects ; and the understanding will then possess two impressions as elements for judging, and be able, by comparing, to come to a sound determination respecting them. Hence, as already observed, a sound practical judgment is the result of a favourable combination of all the organs, sustained by an active temperament and experience.

If these principles be correct, they enable us to explain why, among lawyers, a bad pleader sometimes makes a good judge, and *vice versa*. To a pleader, intellect and propensity are more essential than Conscientiousness :—To a judge,

on the other hand, great moral organs are indispensable ; for, without an ample development of them, his intellect is liable to be led astray by subtleties and false views, and in his decisions the grand element of justice will be wanting. I have noticed, that, where Conscientiousness is large in a lawyer, and he is pleading a bad cause, he cannot avoid betraying, by his natural manner, his impression that he is in the wrong. He in whom this organ is deficient, views all cases as questions of opinion, and contends for victory with that ardour which the other can display only when advocating the cause of truth.

The same principles enable us to judge of the propriety of a very important regulation in one of the institutions of our country—I mean the requisite of *unanimity* in juries in civil causes. If two individuals were constituted umpires on a claim of damages for defamation, and if one of them possessed from nature a large Love of Approbation,—judging from his own feelings, he would rather suffer death than live defamed ; while the other, if he was, by natural constitution, extremely deficient in this organ, could pass his days unmoved by the censure or applause of the world : and the two could not, by any efforts of their understandings, succeed in arriving at the same estimate of the injury sustained by the plaintiff, or agree about the sum which would constitute an equitable compensation for the slander. The one must either surrender his conscience to the other, or allow a third party to decide between them ; for real unanimity is excluded by the very constitution of their minds. No exercise of the *understanding* will produce it. The intellectual perceptions also of jurymen differ. If one be very deficient in the reflecting organs, he will forget the inferential evidence and conclusions as fast as they are stated to him, and hence he may regard a point as not proved, which appears demonstrated to another in whom the reflecting organs are large. It is difficult to admire the wisdom of that legislature which imagines that men can, if they will, arrive by argument, at one conclusion in such cases ; or which, if it knows that

they cannot agree, nevertheless conceives it beneficial to require a verdict in direct opposition to the constitution of their minds,—to produce an appearance of *unanimity*, when the reality is unattainable. Many arguments have been brought forward on the opposite sides of this question ; but it appears to me, that the mode of judging of it afforded by Phrenology carries us to the ultimate principles at once. If it be naturally in the power of men, by honest efforts, to see questions of conduct, such as occur before jury-courts, in the same light, then unanimity should be required ; but if this perfect harmony of sentiment be excluded by nature, it is mere delusion to pretend to bring it about by an act of Parliament. Accordingly, nature prevails here as in every other case ; for all sensible jurors, before commencing their deliberations, arrange among themselves that the minority shall yield to the majority ; and the only effects of the law are to put it in the power of some very obstinate or very wicked individual to force his fellows into the adoption of his opinion—which, from his standing alone, will, on the ordinary chances, be placed at an extreme point in the scale of absurdity ;—or else to defeat the object of the parties, by depriving them altogether of a verdict.

It has been said, that the requisite of unanimity produces attention in the jury to the cause, and discussion of the subject among themselves. This I have no doubt may be true, but even with every degree of attention and discussion, unanimity in general is morally impossible. It is not obvious questions of evidence or right, in which all men may agree, that come most frequently before a court of justice ; but difficult cases, in which the most conscientious and enlightened may differ in opinion. Out of twelve or fifteen persons there is always a risk that two or more may be the antipodes in moral and intellectual constitution to each other. Under the present system such individuals must yield unconvinced. It appears to me that, by leaving out the extremes, and requiring a majority of three-fourths, or some such proportion, the advantages of discussion would be

gained, and the evil of the great body of the jury being forced into a verdict by one obstinate individual, might be avoided. A proposition *voluntarily* assented to by nine men out of twelve, would be nearer the truth than one modified by mutual concessions to conciliate, *but not to satisfy*, the whole.

Having now discussed the metaphysical faculties of Perception, Conception, Imagination, Memory, and Judgment, and shewn them to be merely different kinds of action of the faculties disclosed by Phrenology, I proceed to notice several other mental operations and affections, which make a figure in the common systems of mental philosophy, and to refer them also to their principles in this science.

CONSCIOUSNESS means the knowledge which the mind has of its own existence and operations. Dr Reid regards it as an intellectual faculty. He says of it, that "it is an operation of the understanding of its own kind, and cannot be logically defined. The objects of it are our present pains, our pleasures, our hopes, our fears, our desires, our doubts, our thoughts of every kind,—in a word, all the passions, and all the actions and operations of our own minds, while they are present."

Dr Thomas Brown denies that it is a power, or any thing different from sensation, emotion, or thought, existing at any moment in the mind. It gives us no intimation of the existence of the organs, and reveals to us only the operations of our own minds, leaving us entirely in the dark regarding the mental affections of others, where they differ from our own. Hence, by reflecting on consciousness, which the metaphysicians chiefly did, as their means of studying the mind, we can discover nothing concerning the organs by which the faculties act, and run great risk of forming erroneous views of human nature, by supposing mankind in general to be constituted exactly like ourselves.

Each organ communicates to the mind consciousness of the feelings and ideas which it serves to manifest: thus, if

the organ of Tune be extremely deficient, the individual, although he may have vivid impressions of his own existence, will not be able to attain consciousness of melody ; a person in whom Conscientiousness is extremely small, will not be conscious of the sentiment of justice, or of its obligations ; one in whom Veneration is very feeble, will not be conscious of the emotion of piety. If we place individuals so constituted, in situations requiring, for the right direction of their conduct, vivid consciousness of these emotions, we shall be disappointed. The metaphysicians who studied the philosophy of mind by reflecting on their own consciousness, could not succeed in discovering all the primitive faculties, because they were not conscious of the activity of those whose organs were very deficient in their own brains, or of those which did not give their impulses in the retirement of a philosophical study ; such as Combativeness, Secretiveness, and Acquisitiveness. Farther, consciousness being single, they could not discover that there is a plurality of powers attached to a variety of organs. On the other hand, when the organs are large and the temperament active, intense consciousness of the corresponding feelings and ideas is experienced ; and some persons, mistaking the emotions thus arising for supernatural communications, have fallen into fanaticism and superstition.

No satisfactory explanation has yet been given why consciousness is single when the organs of all the mental faculties, external and internal, are double. We are not conscious of the operation of the organs, and hence, perhaps, their duplicity has the effect only of adding intensity to our emotions and perceptions, without multiplying their number. There are cases on record of double consciousness, apparently from the two hemispheres of the brain being in opposite conditions. "Tiedemann," says Dr Spurzheim, "relates the case of one Moser, who was insane on one side, and observed his insanity with the other. Dr Gall attended a minister similarly afflicted : for three years he heard himself reproached and abused on his left side ; with his right he commonly

appreciated the madness of his left side—sometimes, however, when feverish and unwell, he did not judge properly. Long after getting rid of this singular disorder, anger, or a greater indulgence in wine than usual, induced a tendency to relapse.”¹ In his work on insanity Dr Spurzheim says, “A friend of Gall has the right side of his forehead half an inch higher than the left, and he feels and complains bitterly that he cannot think with the left side. At Dublin, a gentleman whose forehead on the left side is about four lines less developed than on the right, often feels headache on the defective side, and assured me that he is conscious of not thinking with that side.” Dr Caldwell states, in allusion to these instances, that “another case, perfectly analogous, produced by a fall from a horse, exists in Kentucky, not far from Lexington.”² I have received a communication of a case of a similar nature from a gentleman who was the subject of it. In a letter dated 25th June 1836, the Reverend R—— B—— writes to me thus: “You have heard no doubt of persons being deranged with one hemisphere of the brain, and setting themselves right with the other. Gall and Tissot, I think, both mention such cases. A circumstance, however, of this kind occurred to myself, a few months ago, which may perhaps strike you as singular. I was reading in my bedroom one night, after a day of unusually hard labour and excitement. All at once, I seemed to read my author with *two minds*: To speak more intelligibly, I read at the same time a sentence in my ordinary way, *i. e.* I understood the sense of what I was reading, in a plain matter-of-fact way, and I read it likewise in a more than usually imaginative way. There appeared to be two distinct minds in fact at work at the same page, at the same time, which continued after I closed my book and went to bed. The next morning the sensation was gone, and I have not distinctly experienced any thing of the kind since. Do you not think that a different state of activity in the two hemispheres of the brain,—perhaps in

¹ *Phrenology*, p. 37.

² *Elements of Phrenology*, 2d edition, p. 82.

the region of Ideality and Marvellousness,—may account for this? It is certainly different from what is called double vision, for I felt conscious of reading only one page.” Dr Browne, of the Crichton Royal Institution for Lunatics, has favoured me with the following report of a case of divided consciousness. “G. J.’s case,” says he, “differs considerably from those narrated by Major Ellicot and Dr Dewar. It is rather an instance of divided or modified consciousness than of double consciousness. He imagines that he is himself and another person at the same time; he acts as if this belief were sincere, and cannot divest himself of the conviction, that in his body are two natures or persons, prompting courses of conduct widely different. He conceives that his original self, G. J., is a base, abandoned scoundrel, tempting and urging his other, or new, or better self, to whom it should be observed, is attached the emphatic *Ego*, to commit crimes or acts of which *he* altogether disapproved. The second person of this duality repels, resists, struggles with these abominable suggestions, and loathes the tempter or first person. This struggle sometimes becomes real and visible, when the hands, acting under the will of No. 1, or the virtuous and opposing impulse, beat and bruise the legs, body, or head, which is, I presume, supposed to belong to No. 2, the vicious or tempting impulse. The object of the one is obviously to inflict pain and punishment upon the other. The blows are often so sincere and severe as to leave marks for days; and when these are adverted to, the answer is, as if from No. 1, ‘*dont justify him, he deserved it.*’ Such conflicts occur generally during the night; the delusion appears to be strongest at the time of awaking, and the interference of the night-watch is required to *part* or pacify the combatants. The mind appears, on these occasions, to be so entirely preoccupied by the delusion as to confound the sensations communicated by these blows, and to refer them to the body of another. The addresses and solicitations of No. 2 are perfectly *audible* to No. 1, as much so and as intelligible as the voice of a *third* party; and when they are not replied

to by argument or abuse, No. 1 reads *aloud* in order to drown the sound and import. In conversation with those around, G. J. speaks at one time as No. 1, at another as No. 2.

"It seems as if different parts of the brain acted independently, as if there was wanting that concert, that consent and consciousness which gives unity and identity to the proceedings of mind.

"This state has succeeded great cerebral excitement and suicidal mania, during which some organic change has, in all probability, taken place in the nervous structure, as there is a twitching of the muscles of the face and impaired mobility of one leg.

"The head is large, well-formed, and regular, there being perfect symmetry between the two sides.

"The age is 45, the temperament nervo-lymphatic.

"G. J. has been the editor of a newspaper, is well educated, and has, in all probability, kept his brain under 'high pressure.'

"His bodily health is now good, and he has certainly gained mental power recently."

Mr Robert Dale Owen of New Harmony, Indiana, in a letter dated in June 1842, published in the New York Evening Post, mentions that, in his presence, Dr Buchanan of Louisville disturbed consciousness in a man by means of Mesmerism. "By passing his fingers," says he, "in a peculiar manner, backwards and forwards, along the medium line of the sinciput, corresponding with the upper fissures of the hemisphere of the brain, the effect appeared to be, to destroy all sense of identity: to scatter the thoughts, so that they could not be concentrated on any subject, and to cause the legs and arms to be extended in opposite directions, violently and involuntarily. The patient sometimes moved his head and body to one side, then to the other, seemed excessively restless and uneasy, his eyes rolled frightfully in their sockets, and his countenance indicated utter confusion of ideas, and vague apprehension almost amounting to horror," &c. "When restored to his senses, he said he felt as if his con-

sciousness was dissevered, and (as he phrased it) as if 'one part of his head was thinking one way, and one another.' He added, 'that he experienced an impulse to go in different directions at the same time.' By collecting such facts as the foregoing, light will, in time, be shed on their causes, and it is with this view that I have recorded the cases now detailed. Additional facts illustrative of divided consciousness are given, vol. i., p. 173; and vol. ii. p. 224.

It has been argued by some sceptics that the human mind possesses no certain knowledge; because not only the senses and understanding occasionally deceive us, but even Consciousness itself gives false intimations: thus, a man whose leg has been amputated, is sometimes conscious, years after the operation, of a pain in the toe of the lost foot; or a patient suffering under chronic disease of the liver, feels no uneasiness in it, but is conscious of a pain at the top of the right shoulder. The answer to this argument is, that each nerve and faculty has received a definite constitution, in virtue of which it gives certain intimations when affected in a particular manner; when the nerve of the toe, for example, is affected, the nerve itself gives consciousness of pain, accompanied by an instinctive reference to its seat. After the leg has been amputated, part of the nerve remains, and, when affected in the same manner as while the toe existed, it communicates the impression which belonged to it in its entire state. In this there is no deception; because the nerve which originally intimated pain in the toe, is affected in the same manner as it was when the toe existed. In like manner, the liver itself possesses little sensibility, but the phrenic nerve which is ramified on it communicates with the shoulder; and this nerve, being highly sensitive, is affected by the state of the liver, and produces pain in the shoulder. The nerve in this case is really affected, and the pain is the correct indication of its state. It is the office of Causality to discover the causes of these affections, that of Consciousness being limited to the intimation of the sensations themselves. Every derangement of an organ of sensation or perception is accom-

panied by disorder of consciousness to a corresponding extent: thus, in jaundice, the mind has consciousness of all objects being yellow; in cases like that of Miss S. L., detailed on p. 204, there is consciousness of disturbed equilibrium; in such cases as that of Dr Macnish, p. 209, consciousness of hearing music exists; but Causality refers these perceptions to diseases as their causes. When the derangement embraces the organs of Causality themselves, the power of discriminating the impression to be a morbid one is lost, and insanity is established.

It would be of much practical utility to teach individuals the dependence of consciousness on the states of the mental organs, as a means of inducing them, when under morbid excitement, to distrust their own impressions, and seek relief from sensible advisers. In the present system of education, the connexion of the feelings and intellect with material organs, is so greatly overlooked, and every emotion and perception is represented as so purely mental, that when these become exalted or disordered, it is extremely difficult to enable the individual to comprehend how they can be delusive, or in any way affected by corporeal conditions; and hence he suffers much uneasiness in secret, avoids recourse to a physician, and persists in acting on his morbid impressions as if they were sound; till at last disease is permanently established, which, under more enlightened guidance, might easily have been averted, or cut short at its commencement.

It is extremely difficult to determine whether the feeling of personal identity indicated by the pronoun *I* is connected with a particular organ, or the result of the general action of the whole organs. The reader is referred to what is said on this subject in vol. i., on pages 172-3.

ATTENTION is not a faculty of the mind, but results from the knowing and reflecting faculties when actively directed to their objects. Thus, the faculty of Tune excited by melody, *attends* to notes; Causality, addressed by a demonstration, *attends* to the steps of the argument; and the

other faculties of the intellect, in like manner, attend to their various objects. Concentrativeness gives continuity to the impressions of the faculties, Individuality and Eventuality direct them to their objects, and Firmness maintains them in a state of application—and these greatly aid attention; but still attention, in itself, is a mere act of the different intellectual faculties, and not the attribute of any particular power, established exclusively for its own production.

ASSOCIATION. The metaphysicians have endeavoured, by reflecting on their own consciousness, to discover universal laws, by which the succession of ideas in mankind in general is regulated. They imagine our thoughts to follow each other in an established order, and have attempted to find out the causes which determine the order of the train. Success in such an attempt appears to me to be impossible. If we wished to ascertain the laws by which the succession of notes emitted by an *Æolian* harp is regulated, we should endeavour to discover the causes which produced the notes. Similar causes, acting in similar circumstances, produce similar effects; but if we vary one circumstance out of a thousand, we cannot calculate on the result. The causes which determine the succession of notes from an *Æolian* harp are, the structure of the harp, the impetus of the air, and the order in which it excites the various strings. Render all these the same in the case of every harp, and the same succession of notes may be assuredly predicted. But if the air, that emblem of inconstancy, does not blow twice with the same force on the same spot in a month, or will not excite the same strings twice in the same order of succession in a year; and if no two *Æolian* harps can be made in every particular of string, form, and substance, alike, —who, by observing the notes arising from one harp, will succeed in unfolding the laws by which the succession of notes from *Æolian* harps in general may be determined, whatever may be their size, structure, and number of strings, and the circumstances in which they may be placed? This

illustration is applicable to the case of the intellectual faculties. Ideas are affections of *these*, just as notes are affections of the strings of the harp. These affections may arise from the internal activity of the organs, or from impressions made on them by external objects ; and there is as little regularity in the order in which the excitement occurs, as in the breathing of the air on the strings. And, lastly, if harps *may vary* in structure, human beings do positively differ in the relative strength of their powers. Hence the same impressions must produce very different effects, or introduce very different ideas into minds dissimilarly constituted ; and how, amid such a countless variety of causes, can similarity of effects be expected ?

If we place a number of persons on a hill-top, say Arthur's Seat, overlooking a champaign country and the sea, and bid each declare his thoughts :—we shall find that one with Ideality predominant, will think of the magnificence of nature, the boundless extent of the ocean, the vastness of the mountains ; and on recalling the scene, these ideas and emotions will be associated with it in his mind : another, with great Causality and Constructiveness, and little Ideality, will admire the skill which he sees displayed in the cultivation of the fields, and in the construction of the houses and the ships ; one with Benevolence large, will think of the happiness enjoyed by the people who inhabit the plain ; another, with Acquisitiveness active, will think how the various branches of industry will pay : one with a strong Veneration, will probably take occasion to admire the greatness and goodness of God ; and some youthful lover may seize the opportunity afforded by the remoteness of the spot from human observation, to declare a passion for the lovely companion of his excursion. Now, the metaphysician expects to find out laws, by which, on Arthur's Seat being afterwards mentioned in the presence of these individuals, the train of the thoughts of each in relation to it will be regulated ; and he hopes to arrive at this result, by studying the train which arises in his own mind, on the hill being referred to as an

object of thought. Such an expectation must necessarily be futile. Each of the individuals supposed would, on the mention of the hill, experience a train of ideas corresponding to the impressions which he received from it, and nothing can be more dissimilar than these. As well, therefore (to use the words of an ingenious phrenologist), may we expect, by studying the forms and hues of the clouds, which flit along the sky to-day, to be able to discover laws by which their succession will be regulated to-morrow, as, by reflecting on the ideas which pass in one mind, to discover links of association, by which ideas in the minds of mankind in general will be uniformly connected, and introduced in a determinate succession.

Mr Stewart, in his *Elements of the Philosophy of the Human Mind* (chap. v. part ii. sect. iii.), speaks of the "association of ideas operating in producing *new* principles of action," and names *avarice* as one of them. He says, that "it cannot be doubted that this principle of action is artificial;" (p. 392). In the same page, he adds, that "there must be some limit, beyond which the theory of association cannot possibly be carried; for the explanation which it gives, of the *formation of new principles of action*, proceeds on the supposition that there are *other* principles previously existing in the mind. The great question then is, when are we arrived at this limit; or, in other words, when are we arrived" (*not at the primitive faculties, but*) "*at the simple and original laws of our constitution?*" "It is on account of the enjoyments," says he, "which it enables us to purchase, that *money* is originally desired; and yet, in process of time, by means of the agreeable impressions which are associated with it, it comes to be desired for its own sake; and even continues to be an object of our pursuit, long after we have lost all relish for those enjoyments which it enables us to command." The erroneous nature of this mode of philosophizing may be illustrated by directing our attention to the mental organs. Is it conceivable that any habits of association should create a new organ? and yet this is what Mr Stewart's hypothesis

necessarily implies, if by *principles of action* he means faculties of the mind. The love of distinction, for example, is a primitive desire arising from Love of Approbation, and it has a specific organ. Money serves to gratify this desire. According to Mr Stewart, however, there is no organ giving rise to the love of money: But in consequence of "the agreeable impressions which are associated with it," as a means of gratifying the love of distinction, the love of money becomes itself a new principle of action; and, as all principles of action have organs, it must be presumed to create an organ for itself. This new organ, we must suppose, causes money "to be an object of our pursuit long after we have lost all relish for those enjoyments which it enables us to command," and which first called the organ into existence.

It is evident that Mr Stewart never saw clearly the distinction between primitive faculties and their modes of action, and that he did not comprehend the real philosophy of association. The new principles of action supposed by Mr Stewart and other metaphysical authors to be produced by association, are either primitive propensities or sentiments which they have erroneously imagined to be factitious, or the results merely of combinations in action among the primitive powers. Mr Stewart, as we have seen, describes the love of money, and Sir James Mackintosh mentions conscience, as new principles of action produced by association, both of which, however, are referrible directly to primitive faculties having distinct organs. Mr Stewart regards the power of Taste as a faculty formed by particular habits of study; whereas Taste is not a primitive faculty at all, but the result of harmonious action in the primitive powers. Mr Stewart also, as remarked in vol. i. p. 509, confounds, throughout his writings, primitive faculties, modes of action, laws of action, and results of combinations of faculties; mistaking the one for the other, and applying the same language to all, in such a manner as to set consistency at defiance.

Although it is in vain to expect to find any law or principle regulating the association of one idea with another, the

mutual influence of organs by association is determinate. There are also natural associations between certain external objects and the internal faculties: and lastly, artificial associations may be formed between objects and the feelings of the mind; and the laws which regulate the constitution of these associations are ascertainable and interesting. Let us, therefore, inquire briefly into these laws of association.

First, in regard to the connection of organs with each other, I may observe, that as we are able to perform anew, when we wish to do so, any voluntary motion which we have performed before, this shews that the nerves of motion are so associated or connected with the organs of the mind, as to be at the command of the will. See vol. i. p. 89.

In the *second* place, by conceiving an object in distress, we are able to excite the emotion of pity in the mind; by conceiving a splendid scene in nature, we can call forth the emotions of sublimity and beauty depending on Ideality; by reading a terrific story, we are able to elicit the chilling emotions of fear. These facts point out a close connection between the organs of intellect and those of the different propensities and sentiments. Indeed, in the dissection of the brain, the closest relation between its different parts is perceived, combined with arrangements for separate functions. See vol. i. p. 134-5-6.

Farther, in surveying the cerebral organs, we perceive them to be beautifully connected, for the purposes of reciprocal assistance in their action. "When I began," says Mr Scott,¹ "to consider the schedule or map presented to us by Drs Gall and Spurzheim, I could at first see none of this beauty in it. In looking over their list of powers, I could observe no order or connection between them. The whole presented to me a rude appearance, quite different, as I then thought, from what is commonly found in nature. After a

¹ *Observations on Phrenology, as affording a Systematic View of Human Nature.* Edinburgh, 1822. Dr Gall has a section on this subject, *Sur les Fonctions du Cerveau*, tome iii. p. 206.

more attentive consideration, however, light began to dawn upon me, and, beginning to consider the faculties in a certain way, and to group them after a certain order, the whole gradually formed themselves before me into a system of surprising symmetry; and like the disjointed parts of an anamorphosis, when seen from the proper point of view, collecting themselves into one elegant design, delighted me with the appearance of that very order and beauty which I should beforehand have expected to find in them. In a scheme such as this, where we find powers which are analogous, which resemble one another in their nature and uses, or which act upon and co-operate with one another, or mutually aid and assist, or control and balance, each other, we should naturally expect the organs of these powers to be situated near one another, and in such a way as either to adjoin, or at least to admit, of an easy communication. Accordingly, we find this to be the case." Immediately above Amativeness, for example, we see in the bust, Philoprogenitiveness, giving the love of offspring, and Adhesiveness, producing the propensity to attachment, the three together constituting the group of the domestic feelings. Next to them we find Combaticiveness as if there were no dearer objects than those for which our courage could be exerted. Adjoining to Combaticiveness is Destructiveness; the former giving boldness to meet the enemy, the latter putting peril in the onset, and threatening him with destruction.

Amidst the difficulties of life, it is necessary to use not only caution, but also so much of secrecy regarding our own purposes, as not to carry "our hearts on our sleeves for daws to peck at," and we find Secretiveness surmounted by, and in juxtaposition with, Cautiousness.

Turning to the region of the sentiments, we find Veneration, which produces the tendency to religion, surrounded by Benevolence, Hope, Perservance, and Justice; or the fountains of the whole charities and duties of life associated in a group, and beautifully arranged for reciprocal aid and combined action.

We find Ideality approaching these, but a little below them, yet so near to and above Constructiveness as to elevate its designs. Ideality also adjoins to Wit and Tune, as if to give soul and fancy to poetry.

In like manner we find the organs which simply perceive, or the knowing organs, arranged together, along the superciliary ridge, and those of reflection occupying the summit of the forehead, like the powers which govern and direct the whole.

Mr Scott, after exhibiting these views, observes, that such an arrangement is more beautiful, systematic, and appropriate, than human ingenuity could have devised ; and taken in connexion with the fact, that the organs were discovered at different times, and in separate situations, and that order and beauty appeared only after the ultimate filling up of the greater part of the brain had taken place, it affords a strong argument *a priori*, that the organs were *discovered*, not *invented*, and that the system is the work of *Nature*, and not of Drs Gall and Sphurzeim.

In treating of the organ of Language, I have explained the association of Ideas with signs. I may here add, that the science of Mnemonics is founded on this power of the mind to associate ideas with other ideas, or with arbitrary signs. In devising means for aiding the memory, it should be constantly kept in view, that every individual will, with the greatest ease, associate ideas with such external objects as he has the greatest natural facility in perceiving. Sometimes portions of space are used as means for recalling ideas which we wish to remember. The room, for example, is divided, in imagination, into compartments, and the first topic of the discourse is placed in the first compartment, the second in the second, and so on ; in the hope that, by thinking on the spaces, the different heads of the discourse with which they were associated may be recalled. It is, however, only when Locality is large that such a device can be serviceable ; because, if this faculty be weak, it will be as difficult to imagine and recollect the positions of the compartments as the dis-

course itself. If, in like manner, numbers be resorted to, as the connecting medium, with the view that, on hearing one fact, which we wish to recollect, we shall associate it with the number one, and on hearing another, we shall associate it with the number two,—it is certain, that, unless the organ of Number be large, this will be a more difficult task than that of simply recollecting the facts themselves. Hence, different means to aid recollection should be used for different individuals. He who has Number most powerful, will associate words most easily with numbers; he who has Form most energetic, will associate words most easily with shapes; he who has Locality most vigorous, will associate words most easily with positions: and he who has Tune most powerful, will associate words most easily with musical notes. Hence also, the influence of associations on our judgment is accounted for. He in whom Veneration is powerful, and to whom the image of a saint has been from infancy presented as an object to be venerated, experiences an instantaneous and involuntary emotion of Veneration, every time the image is presented to him, or a conception of it formed; because it is now the sign which excites in him that emotion, altogether independently of reflection. Until we can break this association, and prevent the conception of the image from operating as a sign to excite the faculty of Veneration, we shall never succeed in bringing his understanding to examine the real attributes of the object itself, and to perceive its want of every quality that ought justly to be venerated. In the same way, when a person is in love, the perception or conception of the beloved object stirs up the faculties which feel into vivid action; the consequent emotions are so delightful, and the reflecting faculties have so little consciousness, that the real source of the fascination is in the faculties which feel, that it is impossible to make the lover see the object of his passion with the eyes of a disinterested spectator. If we could once break the association between the object and the faculties which feel, the reflecting faculties could perform their functions faithfully, and the beloved object would be

seen in the true colours. But, while we are unable to break this link, and to prevent this fascination, we may reason *ad sempiternum*, and our conclusions will never appear to be sound ; because the premises, that is, the appearance of the object, will never be the same to the party most interested in the argument, and to us.

Thus, the associations which mislead the judgment, and perpetuate prejudices, are those of words or things with *feelings* or *sentiments*, and not associations of conceptions with conceptions, or merely of ideas with ideas. The whole classes of ideas formed by the knowing and reflecting faculties may be associated *ad infinitum*, and no moral prejudices will arise, if these ideas do not become linked with the propensities and sentiments.

In studying the laws of association, therefore, we must go beyond the ideas themselves, and consider the organs and faculties which form them. If these be kept in view, the phenomena of association will appear more lucid and intelligible ; and we shall find nature confirming our principles, because they will be founded on her laws. In regard to the organs, I may observe that there must be a state of an organ corresponding to every idea formed, and to every emotion felt ; and that, by repetition of an act, the organs acquire an increased tendency to enter into the same states in the same order of succession. If, for instance, the organ of Language has been trained to repeat certain verses, or the organ of Tune to reproduce a certain air, a tendency will be produced in the organ to renew the same series of actions, in other words, to repeat the verses or reproduce the tune with increased facility and precision. If we direct our attention to the combinations of the organs, we shall see the individual who has the *reflecting* organs most powerful, associating ideas according to the relation of necessary consequence ; we shall perceive him who has the *knowing* organs most largely developed, associating ideas according to the relations of time, place, and circumstances ;¹ and, very often, though not always,

¹ See examples of association of colours on page 60 of this volume.

we shall find each individual associating with most facility, and recollecting most perfectly, those ideas which minister to the gratification of his most powerful propensities or sentiments. If we seek only for relations among individual ideas themselves, or for general laws, according to which ideas are associated in all individuals, our researches will never be crowned with success. No stronger proof of this fact could be found, than the circumstance, that, although different individuals will use the same process of reasoning to produce the same conviction, yet no two will state their arguments in the same words, or make use of the same illustrations. The general similarity of the reasoning process depends on the similarity of the constitution of the faculties which reason ; but differences in words and illustration arise from particular individuals possessing different combination of organs and being placed in different circumstances, which afford materials of thought in some degree peculiar to each.

In many countries, unprincipled individuals have availed themselves of the law of association before explained, to enslave the minds of their fellow-men. By means of early impressions, they have connected certain practices and notions favourable to their own power, with the sentiments of Cautiousness, Conscientiousness, and Veneration in the people, and thereby caused them to fear objects existing only in imagination, and to perform actions inconsistent with the welfare of society. Phrenology will tend to bring this species of tyranny to an end. Each faculty has a sphere of legitimate action, established by the Creator, which is in harmony with every interest that He acknowledges as pure and beneficial ; but there is also a boundless field of abuse of each, favourable to base and selfish purposes. While the faculties themselves, and their relations to each other and to external objects, are unknown, and the human intellect is uncultivated and ignorant, it is extremely difficult for ordinary minds to distinguish accurately the boundaries of right ; and hence a wide door is opened to abuse of every power. From this cause error is largely mixed up with truth, and delibe-

rately so, by the unprincipled, who hope to profit by delusion. Hence the opinions and institutions of society in most countries present an inconsistent appearance :—In consequence of our own ignorance, we still perceive in the moral world too little of that magnificent power and comprehensive design, applied by the Deity for benevolent ends, which are so conspicuous in physical creation. In this state of things, it is not difficult to impress false and prejudicial notions on the minds of youth, and to support them through life by observances fitted to give them permanence ; and on this basis individual interest erects its baneful structures. But when the faculties, and their relations, shall be generally studied, and knowledge of their legitimate spheres of action shall be obtained, the discovery will be made, that creation is constituted in harmony only with their proper manifestations ; and then, acute perception of right, with high determination to pursue it, will take the place of that groping blindness, and irresolute imbecility, which now characterize the moral aspects of society in many countries of the world.

In treating of the circumstances which modify the effects of size upon the power of the cerebral organs,¹ I enumerated “ *constitution*, health, exercise, excitement from without, and, in some cases, the mutual influence of the organs.” The effects of the first three circumstances were considered in the introductory chapter ; and in the present section I have introduced various observations on the other two. The laws of the mutual influence of the organs form a department of Phrenology to which close and particular attention has been too little directed. Mr Robert Cox, however, has recently been engaged with the investigation of these laws, and some of his conclusions are published in *The Phrenological Journal*. “ There are different modes,” he observes, “ in which one cerebral organ may be said to influence another. First, it may restrain us from *acting* under the other’s impulse, without in any degree lessening the force of that impulse itself ; as when a person who ardently desires to strike his neighbour,

¹ See Introduction, vol. i. p. 49.

is prevented by Cautiousness from gratifying this inclination. Or; in the second place, it may direct the other to seek gratification *in a particular line of conduct*; as when an avaricious man is led by Conscientiousness to amass wealth by honest industry rather than by theft. In such cases, however, it is only the *result* of the activity that is modified, not the activity itself; so that, strictly speaking, the mutual influence of the organs is *the production, increase, diminution, or extinction, of the activity of one organ, consequent upon certain states of other organs*. As already hinted, this department of Phrenology, though a most interesting field of inquiry, has hitherto been greatly overlooked. Dr Spurzheim adverts to it in a brief and somewhat unsatisfactory manner in his work on Education, a chapter of which is devoted to 'the mutual influence of the faculties as a means of excitement:' and the subject is touched upon in a cursory way also by Mr Combe, in his analysis of Association, in the '*System of Phrenology*.' It is intricate and bewildering in no ordinary degree, but, being also of very great importance, obviously deserves to be minutely and carefully investigated. I have of late bestowed considerable attention upon this department of the physiology of the brain, and am convinced that phrenologists may labour in it with every encouragement to hope for useful and valuable discoveries. Such data as I have been able to collect, appear to shew that the mutual influence of the organs is regulated by general laws—which, however, are, for special purposes, subject to modification by *particular laws*, regulating only *certain organs*. My speculations concerning the former class of laws here alluded to, although they have made some progress, are not yet sufficiently mature for publication; but in regard to at least one department of the *particular laws*, precise and definite conclusions are believed to have been arrived at."¹ The laws whose existence Mr Cox conceives himself to have established are, 1st, That when any of our faculties is *pained* or *disagreeably* active, Destructiveness is excited sympatheti-

¹ *Phrenological Journal*, vol. ix. p. 403.

cally, in a degree varying with the intensity of the existing pain; and, 2dly, That by a law perfectly analogous, the organ of Benevolence receives excitement from the *agreeable* or *pleasurable* action of the organs of the other mental powers. In support of these propositions Mr Cox has adduced many facts and arguments, for which I am obliged to refer to the pages of the Journal.¹

PASSION is the highest degree of activity of every faculty; and the passions are as different as the faculties: Thus, a passion for glory is the result of a high activity of the Love of Approbation; a passion for money, of Acquisitiveness; a passion for music, of the faculty of Tune; a passion for metaphysics, of Causality. Lord Byron says, "I can never get people to understand that Poetry is the expression of *excited passion*; and that there is no such thing as a life of passion, any more than a continuous earthquake, or an eternal fever."² This is correct, but among the faculties excited to passion, Ideality must be one before beautiful or exquisite poetry can be produced.—There can be no such thing as *factitious* passions, although such are spoken of in various books. Man cannot alter his nature; and every object that he can desire must be desired in consequence of its tending to gratify some natural faculty.

"Locke, and many modern writers," says Dr Spurzheim, "maintain that children are destitute of passions; and it is true, that there is, in adults, one passion which is not observed in children, the passion of love. There have been, however, some individuals who, at three or four years of age, have felt passionately this propensity; and, in general, the greater number of inclinations manifest themselves with energetic activity in children. The opponents of Phrenology, for the most part, confound the objects upon which the particular faculties act at different ages, with the inclinations themselves. Children, it is true, have no inclination to defraud the orphan of his inheritance, or to conquer kingdoms;

¹ See vol. ix. p. 408; and vol. x. p. 1.

² Letter 436, Moore's *Life*, vol. v. p. 197.

but they sometimes deceive one another for a bird's nest ; they fight for playthings, and they are proud to occupy the first place at school." The same faculties which give desires for these objects, when differently directed in after-life, produce the various passions which characterize our maturer years. The boy who is extremely mortified at losing a place, and burns with desire to stand at the top of his class, will not be destitute of ambition when a man.

PLEASURE and PAIN are affections of every faculty. Each, when indulged in its natural action, says Dr Spurzheim, feels pleasure ; ' when disagreeably affected, feels pain : consequently the kinds of pain and pleasure are as numerous as the faculties. Hence one individual delights in generously pardoning offences, and another in taking revenge ; one is happy in the possession of riches, and another glories in disdaining the vanities of mankind." Thus, " pain and pleasure are the result, and not the cause, of the particular faculties."

PATIENCE and IMPATIENCE. Patience, as a positive feeling, arises from a large development of Benevolence, Veneration, Hope, Conscientiousness, and Firmness, combined with small Self-Esteem. This combination is accompanied with meekness, humility, constancy, and resignation ; the constituent elements of a patient and enduring spirit. Apathy may arise from a highly lymphatic temperament, or great deficiency of brain : By persons ignorant of human nature, this state is sometimes mistaken for patience ; just as the extinction of thought and feeling in a nation is called by a despot, repose.

An individual possessing an active temperament, and Self-Esteem, Combativeness, and Destructiveness, larger than Benevolence, Veneration, and Conscientiousness, will be impatient of opposition and contradiction ; one in whom Tune, Time, and Ideality are large, will be impatient of bad music ; one in whom Benevolence, Conscientiousness, and Causality are large, will be impatient of hypocritical and selfish con-

duct. If the nervous and sanguine temperaments predominate, the organs will be very active, and the individual will be impatient of all slow prosing movements, whether in speech or in actions.

JOY and GRIEF. Mr Hume enters into a very acute and refined analysis, to shew that grief and joy are merely *mixtures of hope and fear*. After treating of several passions, he continues thus : "None of these passions seem to contain any thing curious or remarkable, except *hope* and *fear*, which, being derived from the probability of any good or evil, are mixed passions, that merit our attention."

"Probability," says he, "arises from an opposition of contrary chances or causes, by which the mind is not allowed to fix on either side ; but is incessantly tossed from one to another, and is determined one moment to consider an object as existent, and another moment as the contrary."

"Suppose, then, that the object concerning which we are doubtful, produces either desire or aversion, it is evident that, according as the mind turns itself to one side or the other, it must feel a momentary impression of joy or sorrow."

"The passions of fear and hope may arise, when the chances are equal on both sides, and no superiority can be discovered in one above the other. Nay, in this situation, the passions are rather the strongest, as the mind has then the least foundation to rest upon, and is tossed with the greatest uncertainty. Throw in a superior degree of probability to the side of grief, you immediately see that passion diffuse itself over the composition, and tincture it with fear. Increase the probability, and by that means the grief ; the fear prevails still more, till at last it runs insensibly, as the joy continually diminishes, into pure grief. After you have brought it to this situation, diminish the grief by a contrary operation to that which increased it, to-wit, by diminishing the probability on the melancholy side, and you will see the passion clear every moment, till it changes insensibly into hope ; which again runs, by slow degrees, into joy, as you increase that part of

the composition by the increase of the probability." Mr Hume concludes by this question: "Are not these as plain proofs that the passions of fear and hope are mixtures of grief and joy, as in optics it is a proof that a coloured ray of the sun, passing through a prism, is a composition of two others, when, as you diminish or increase the quantity of either, you find it prevail proportionally, more or less, in the composition?"¹

These views are exceedingly ingenious, and, to a certain extent, sound; but Phrenology presents us with a still more distinct and accurate elucidation of the nature of grief and joy. Each propensity desires to attain its object, and the attainment affords to the mind a feeling of gratification. Acquisitiveness desires wealth; Love of Approbation longs for praise and distinction, and Self-Esteem pants for authority or independence. The *obtaining of wealth* gratifies Acquisitiveness; this is attended with a pleasing emotion, and this emotion constitutes joy. The *losing of wealth* robs Acquisitiveness of its object; this, again, is accompanied with a painful emotion, which is grief. The same remarks may be applied to Love of Approbation, Self-Esteem, or Philoprogenitiveness. When a lovely child is born, the delight experienced by the parents will bear a proportion to the ardour of their desire for offspring; or, in other words, their *joy* will be great in proportion to the gratification of their Philoprogenitiveness. If they lose the child, their *grief* will be severe in proportion to the intensity of this feeling, lacerated by the removal of its object. In all these instances we find *joy* and *grief* existing without involving either *hope* or *fear*.

Let us now advert to Mr Hume's analysis. Cautiousness and Hope are both primitive sentiments, the former producing fear, and the latter an emotion *sui generis*, attended with delight. Both have relation to *future* objects, and in this respect differ from the other faculties, the gratification of which relates to *present* time; but this circumstance does not change the laws of their operation. If the prospect of future evil be

¹ Hume's *Dissertation on the Passions*, sect. i.

presented to the mind, it excites Cautiousness, and fear is produced ; this emotion is painful, but fear is not grief. It is to be observed, however, that there must be the *fear of something* ; and as *evil* is that which causes a disagreeable affection of some primitive faculty,—of Acquisitiveness or Philoprogenitiveness, for example, Cautiousness is rarely affected *alone*, but generally in conjunction with some other power. Thus, if a son be sick, Cautiousness may fear that he will die, and Philoprogenitiveness be painfully affected by the prospect of that event,—which painful emotion is grief. Here fear and grief are conjoined ; but they arise from different sources, and although the *fear* cannot exist without the *grief*, in some degree or other, yet the *grief* might exist without the *fear* ; and would so exist, if the child were suddenly carried in a corpse. In the same way, if a person hope, he must *hope for something*. If for gaining a thousand pounds, the prospect gratifies Acquisitiveness, and this is joy. Here the active Hope and the expected gratification to Acquisitiveness combine in producing joy, but still the sources of the joy and hope are separate ; and if the money were actually gained, joy would exist without the hope, although hope can scarcely be active without joy. The principles here unfolded will be found to elucidate every instance of the operation of hope and fear, joy and grief, which can be supposed ; and this is a strong proof that we have found the truth. They explain beautifully, for instance, how, with many individuals, the *anticipation* of good is more delightful than the enjoyment of it. If Acquisitiveness and Hope be both strong, the *prospect* of gain excites and gratifies *both faculties at once* ; whereas, the *actual attainment* satisfies *Acquisitiveness*, and excludes Hope. But Hope being, not less than Acquisitiveness, a source of pleasure, it is easy to conceive that the *activity of both* may yield more *delight* than that of either separately, and that when Hope is dropped from the combination, a great part of the pleasure will be gone.

The converse of this holds equally good. The prospect of distant evil is more painful than the experience of it when

it actually occurs. While the loss of a child is contemplated at a distance, Cautiousness, if large, adds its melancholy and heart-sinking fears to the pains of a wounded Philoprogenitiveness; but when the event happens, the influence of Cautiousness ceases, Philoprogenitiveness alone suffers, and in consequence, the actual distress is frequently less grievous than the anticipation of it.

Great wisdom and benevolence on the part of the Creator are displayed in this constitution of the mind; for we are thereby prompted, with double ardour, to avoid evil, while it is yet at a distance, and subject to control from our efforts.

SYMPATHY¹ may be defined to be a fellow-feeling in one person, with emotions experienced by another. By attending to the laws which regulate the activity of the mental faculties, we shall discover the true nature of this affection, and the circumstances most favourable to its occurrence.

Every internal faculty, like each of the external senses, is most powerfully and most agreeably roused to activity by the direct presentment of its own objects; Cautiousness, for instance, by the aspect of danger; Benevolence, by that of suffering; and so on. Hence, if two individuals of nearly similar constitutions of mind be exposed to the operation of the same external causes, the same faculties being called into activity in both, will give rise to similar emotions; and they may then be said to *sympathize* with each other. This is one kind of sympathy, but it is not the state of mind to which that term is most correctly applied.

The next source of stimulus to the faculties, is that afforded by Natural Language. When any faculty is predominantly active, it gives a peculiar expression to the features, and certain determinate attitudes to the body, the import of which is intuitively understood by all who possess the same faculty even in a moderate degree. Thus, Self-Esteem being predominantly active, communicates to the body a cold,

¹ I am indebted to the kindness of Dr A. Combe for the following observations on Sympathy.

formal, erect, and haughty air. This air is recognised intuitively by the spectator as indicating excessive pride in the individual who exhibits it; and it is called the natural language of Self-Esteem.¹ Now, by a law of our constitution, the natural language of any active faculty invariably excites the same faculty to action, and, consequently, gives rise to the same emotions, in the minds of those who witness it. The forbidding strut of great Self-Esteem, for instance, in a person whom we never saw before, addresses itself directly to our Self-Esteem; we instinctively *draw up*, and feel moved to support our own consequence by a coldness proportioned to his. In like manner, when we meet for the first time with a person whose countenance and gestures express kindness, candour and open-hearted friendship, which are the natural language of active Benevolence, Conscientiousness, and Adhesiveness, the same emotions are excited in ourselves, and we instinctively return his advances with a kindness corresponding to his own.² Or, let us imagine that we hurry to meet

¹ See Remarks on the Natural Language of the Faculties, vol. i. p. 182.

* These phenomena are differently explained by Mr Robert Cox, who regards the influence of the law of sympathy as less extensive. Commenting on the above passage in the text, he says: "It appears to me that these effects take place, not under the operation of any such law as that imagined by Dr Combe, but simply because the natural language conveys a *meaning* calculated to rouse the corresponding faculty in the spectator. The forbidding strut of Self-Esteem calls that sentiment into action in ourselves, only in so far as it is significant to us of an insult or assumption of superiority on the part of the strutter—these being directly calculated to stimulate the faculty in us, just as by a fine landscape the sentiment of Ideality is called into play. That the mere natural language of Self-Esteem does not excite the same faculty in the spectators, is obvious from the fact, that where circumstances put all reference to self out of the question, no such consequence ensues: thus, though we see an actor on the stage exhibiting in perfection the natural language of arrogance, yet, being ourselves not in the least offended by the exhibition, we experience no inclination to "draw up," but are satisfied with laughing heartily. In like manner, we may see one man strutting up to another in the street, without feeling at all disposed to imitate his carriage; though, if *ourselves* strutted up to, Self-Esteem is touched by the insult, and its natural language, of course, is exhibited. That this is the consequence

a friend, whom we expect to find all happiness and gaiety, and that, instead of this, seriousness, anxiety, and grief, are depicted on his countenance, and indicated by his gestures, these being the natural language of Cautiousness and other faculties painfully affected, will call up a corresponding affection of the same faculties in our minds, and, without knowing what has distressed him, our features and attitudes will instantly assume an expression consonant with his own. It is to this involuntary and almost unconscious communication of feelings and emotions from the mind of one individual to that of another, through the medium of natural language, that the term Sympathy is most properly applied.

An excellent illustration of this kind of sympathy is to be found in the effects of a panic, or excessively excited Cautiousness, in one individual, exciting the same feeling in all who behold it. The very sight of a panic-stricken person, when we do not know the cause which has given rise to the alarm, excites a general uneasiness about our own safety; and if a great number of persons together, and at the same instant, perceive the terrified expression, it instantly rouses

of the unceremonious treatment alone, and not of mere perception of the natural language, appears from this, that an insult given quite unintentionally, and with the kindest and most respectful air, has exactly the same effect. I shall never forget the air of offended dignity with which a gentleman in a public office "drew up," when, in a moment of abstraction, half-a-crown was offered him as a compensation for his civility in shewing the building. So it is likewise with Destructiveness and Benevolence. We may see a man furiously enraged, without having our own Destructiveness excited in the least; while the tenth part of the concomitant verbal abuse, if lavished on ourselves, would immediately kindle our wrath into a flame. Thus also, the natural language of Benevolence fails to excite that faculty in us, if we are aware that the appearance is merely assumed. An open, sincere, and friendly countenance, produces good-will only in so far as it is significant of estimable qualities, and these, being agreeable to our own feelings, excite Benevolence through their medium. All the phenomena which really take place, are explained by the laws whose existence I have laboured to establish—namely, that Destructiveness is roused by the disagreeable action, and Benevolence by the agreeable, of every power of the human mind." *Phrenological Journal*, vol. x. p. 13.

the faculty of Cautiousness to its highest pitch of activity in all of them, and produces the most intense feelings of dread and alarm. Such are the causes and origin of panics in battles and in mobs; and hence the electric rapidity with which passions of every kind pervade and agitate the minds of assembled multitudes.

Another and very familiar example of this kind of sympathy may be seen in a crowded city. Let any one in passing along London Bridge, for instance, stop short, and turn up his face, with his mouth half open, as if stupefied with wonder and amazement; and immediately the same expression, being the natural language of Individuality and Wonder, will be transferred to the countenances of nine-tenths of the passengers, not one of whom, of course, will be able to assign any *direct* cause for the emotion with which his mind will be filled. As the propensities and sentiments employ the intellect to minister to their gratification, if the wag happen to say that it is something vastly surprising in the heavens which attracts his gaze, the majority of the *curious* in wonders will soon, by a stretch of intellectual conception, come to perceive *something* where nothing actually exists.

True sympathy, then, arises from the natural language of any active feeling in one individual exciting the same feeling in another, "*antecedently to any knowledge of what excited it in the person principally concerned;*" and, therefore, as the stimulus of natural language is secondary or inferior in power to that derived from the direct presentment of the objects of any faculty, it is easy to explain why the person who feels sympathetically, feels less deeply than the person with whom he sympathizes. The same principle explains, also, why all men do not sympathize in the same degree, and why, in some cases, the spectator does not sympathize at all. If the objects presented be such as to afford a *direct* stimulus to a different faculty in us, from that exhibited in activity by another, it follows that, in virtue of the stronger influence of the direct excitement, the particular faculty which it addresses will be roused into higher activity than the one which has

only the less powerful stimulus of natural language, and thus a totally dissimilar emotion will be experienced. For example, let us suppose that a man with a good endowment of *Combativeness* and *Destructiveness*, is attacked on the highway; the menacing looks and gestures (the natural language of these faculties) displayed by the aggressor, instantly rouse them into energetic action in the defender, and force is repelled by force. But, suppose that the attack is made upon a woman, or an individual in whom *Combativeness* is only moderate, and in whom *Cautiousness* predominates, the attack then becomes a *direct* stimulus to *Cautiousness*, which, being excited, produces *fear*; and the direct stimulus of *Cautiousness* overpowering the indirect stimulus of *Combativeness*, submission or flight is resorted to, rather than defence.

Dr Adam Smith¹ supposes, that there are emotions with which we have no sympathy. "The furious behaviour of an angry man," says he, "is more likely to exasperate us against himself than against his enemies." According to the theory, however, of sympathy, that it excites in us the same emotion which others feel, this opinion seems to be untenable. If *Combativeness* and *Destructiveness* in one, excite by sympathy *Combativeness* and *Destructiveness* in another, which I hold them to do, it follows, that, as the function of these faculties is to attack or to repel attack, when they are roused, they must, from their very constitution, exert themselves against something or somebody. If we know the cause of the anger, and approve of it, and direct our *Combativeness* and *Destructiveness* against the angry man's enemies, this is clearly sympathy in every sense of the term. But if we disapprove of the cause, then he himself becomes the object of our resentment; and in popular language it may be said, that, in this case, we do not sympathize with him: but it must be observed, *1st*, that the activity of *Combativeness* and *Destructiveness* in him is the cause of rousing the same faculties in us; and, *2dly*, that the reason of anger being di-

¹ *Theory of Moral Sentiments*, p. 32.

rected against himself is to be found in his having outraged, by his conduct, our moral sentiments, and presented us with an object (an unreasonably furious man) which stimulates these *directly*; and they being excited, determine the direction which Combativeness and Destructiveness shall take. The same reasoning applies to the sympathy of Self-Esteem and of other faculties, hitherto supposed not to sympathize.

The proof that we do sympathize with anger, when properly directed, as well as with grief or pity, is to be found in the cordiality with which we approve of, and indeed encourage, a just degree of it. Fortunately, in the case of Combativeness and Destructiveness, as well as of all the other propensities, our sympathy, beyond certain limits, is soon arrested by the direct stimulus which the moral sentiments receive from the conduct of the angry person, and by the deep sense of their inherent supremacy which is then felt. In consequence we sympathize with or approve of the actions produced by the lower faculties of others, only when these are guided by the faculties peculiar to man. For example, we never sympathize with Combativeness when indulged for the mere pleasure of fighting; or of Destructiveness, when gratified for the mere delight of being ferocious; or of Acquisitiveness, when directed to the sole purpose of accumulating wealth. But we sympathize with the action of all of these faculties, when directed by justice and understanding. Such, however, is the beautiful constitution of our nature, that we sympathize with the action of the sentiments proper to man, even when unmingled with any other motive; for example, we sympathize with benevolence, from the mere glow of charity; with veneration, from the mere inward feeling of devotion; with justice, from the pure dictates of Conscientiousness; and actions done, apparently from the impulses of these faculties, lose their character of purity and excellence in our estimation, in exact proportion to the alloy of the inferior faculties which we perceive to be mingled with them. Kindness, in which we perceive interest, is always less valued than when pure and unadulterated. Activity in the service of the public loses its merit in our eyes, in exact proportion as we

perceive the motive to be the Love of Approbation, unmingled with Conscientiousness and true Benevolence. These facts prove the accuracy of the phrenological doctrine, that the higher faculties are constituted to govern the lower ; and also that man is conscious of possessing feelings, necessary, no doubt, in themselves, but of the gratification of which, when undirected by the superior powers, he himself disapproves. Even the higher sentiments, however, to be approved of, must act conformably to the understanding ; and excess of veneration, of benevolence, or of scrupulosity, is regarded as weakness, as excess of any lower propensity is regarded as vice.

The doctrine of sympathy leads to valuable practical consequences. The natural language of any faculty is intelligible to, and excites the same faculty in, another, and this simple principle explains why harshness is much less powerful than mildness in commanding the services of others. Harshness is the natural language of active Self-Esteem, Combativeness, Destructiveness, and Firmness : in virtue of the above rule, it naturally excites the same faculties in those against whom it is directed, and an instinctive tendency to resistance or disobedience is the result. Among the uneducated classes this process is exhibited every day. A parent, in a harsh and angry tone, commands a child to do or to abstain from doing something ; the child instinctively resists ; and loud threatenings, and at last violence ensue. These last are *direct* stimulants to Cautiousness ; they overpower the faculties excited only by the indirect stimulus of harshness, and obedience at last takes place. This is the uniform effect of imperious commands : obedience never ensues till consequences alarming to Cautiousness are perceived, and then it is attended with a grudge. Veneration, Conscientiousness, Love of Approbation, and Benevolence, on the other hand, are the faculties which lead to willing submission and obedience, and to which, therefore, we ought to address ourselves. If we stimulate them, compliance will be agreeable to the individual, and doubly beneficial to the person who commands.

This principle explains also the force of example in training to good conduct, and affords instructive rules for the proper education of the propensities and sentiments. Where parents and seniors act habitually under the influence of the higher sentiments, the same sentiments in children not only receive a *direct* cultivation, but are sustained in enduring vivacity by the natural expression of their activity thus exhibited. Children having the organs of the sentiments early developed, can judge of what is right and wrong long before they can reason; and hence the importance of always manifesting before them the supremacy of the moral feelings. Much of the effect of example upon the future character has been ascribed to imitation; but although this faculty has an influence, I am persuaded that it is small compared with that of Sympathy as now unfolded.

There is a state of mind which has been confounded with Sympathy, but which arises from the direct excitement of the faculties by their own objects. When we see a stroke aimed and ready to fall upon the arm or leg of another person, we are apt to shrink and draw back our own leg or arm, and when it does fall, we in some measure feel it, and are hurt by it as well as the sufferer. Dr Adam Smith proceeds to explain this by saying, that our fellow-feeling here arises from our changing places in fancy with the sufferer. Thus, if our brother is upon the rack, says he, "by the imagination we place ourselves in his situation, we conceive ourselves enduring all the same torments; we enter as it were into his body, and become in some measure the same person with him, and thence form some idea of his sensations, and even feel something, which, though weaker in degree, is not altogether unlike them. His agonies thus brought home to ourselves, when we have thus adopted, and made them our own, begin at last to affect us, and we then tremble and shudder at the thought of what he feels."¹

This theory, however, appears to be incorrect, for we often feel intensely for another's misery, without, even in idea,

¹ *Theory of Moral Sentiments*, p. 30.

changing places with him. In beholding suffering, we feel deep commiseration with its object, simply because the faculty of Benevolence, the function of which is to manifest this emotion, is a primitive mental power, having the same relation to external misery or pain that light has to the eye ; and as such it is as instantly and irresistibly roused by presentment of a suffering object, as the eye is by the admission of light, or the ear by the percussion of sounds. In witnessing another's misery, we, in virtue of this constitution of mind, first feel the emotion of pity, and, in proportion to its strength, fancy to ourselves the pain which he endures : But the pity always precedes, and the effort to conceive the pain is the *effect*, and not the cause, of the pity. Hence those who are remarkable for a moderate endowment of Benevolence, although possessing superior intellectual or *conceiving* powers, never even try to fancy themselves placed in the situation of the sufferer, because they feel no motive impelling them to the attempt. The benevolent idiot, on the other hand, with scarcely any power of conception, feels the most poignant distress.

The same principle explains our shrinking from a blow impending over another. The feeling then experienced is a compound of fear and pity, Cautiousness and Benevolence. Fear is excited by the danger, and Pity is roused by the consequent pain. Danger is the direct stimulant of Cautiousness, and suffering that of Benevolence ; and, therefore, when these objects are presented to the mind, we can no more help feeling the corresponding emotions, than we can help seeing or hearing. The direct chief end or function of Cautiousness is the care and preservation of *self* ; therefore, when it is excited by the aspect of danger, we look eagerly to *self*, and draw in our own leg or arm as parts of *ourselves* ; but this results directly from the constitution of the faculty, and not from putting ourselves in the place of another. The direct end or function of Benevolence, again, is the good and happiness of *others*, and therefore, when it is excited by the mi-

sery of another, it necessarily, from its very constitution, feels for *them*, and not for ourselves.

An active temperament greatly conduces to sympathy, by producing vivacity in all the cerebral functions; but this does not supersede the laws of sympathy before explained.

HABIT. Next to Association, Habit makes the most conspicuous figure in the philosophy of Mr Stewart. He refers the incapacity of some individuals to discriminate colours, to habits of inattention. The powers, also, of wit, fancy, and invention in the arts and sciences, he informs us, are not the original gifts of nature, "but the result of acquired habits."¹ "The power of taste, and a genius for poetry, painting, music, and mathematics," he states, "are gradually formed by particular *habits* of study or of business." And not only does Habit execute these important functions in the system of Mr Stewart, but, in the estimation of individuals in private life, it appears to be viewed as almost omnipotent. On reading to a friend the account of the boy J. G.'s early dishonest conduct,² he attributed them all to *bad habits* formed in the Charity Work-house of Glasgow; on exhibiting an individual whose mental character was directly opposite, he ascribed the difference to *good habits*, formed under the tuition of his parents. Thus, there are no talents so transcendent, and no dispositions so excellent or so depraved, but habit is supposed by many, at once, to account for them in such a manner as to supersede the necessity of all further investigation. What, then, *is* HABIT, and what place does it hold in the phrenological system?

Every voluntary action is a manifestation of some one or more faculties of the mind. Habit is defined to be "a power in a man of doing any thing, acquired by frequently doing it." Now, before it can be done at all, the organ on which it depends must be possessed; and the larger the organ, *cæteris paribus*, the greater will be the facility with

¹ *Elements*, vol. i. chap. v. p. 1. sect. 4.

² See *Trans. of the Phren. Soc.* p. 269.

which the individual will do the thing at first, and learn to repeat it afterwards. George Bidder, for example, the celebrated mental calculator, acquired the habit of solving, in an incredibly short time, without the aid of notation, extensive and intricate arithmetical problems. Before he could begin to do such a thing, the organ of Number was indispensable; possessing it largely, he made great and rapid acquisitions of power in calculation, and at seven years of age established the *habit* which seemed so surprising. Other individuals are to be found endowed with a small organ of Number, who, although forced by circumstances to practise the use of figures, never succeed in acquiring a habit of solving, with facility and success, even the simplest arithmetical questions. This illustration may be applied to painting, poetry, music, and mathematics. Before the habit of practising these branches of art and science can be acquired, the organs on which the talents depend must be largely possessed; and being so, the habits result spontaneously from exercising the organs. As quarrelling and fighting are manifestations of Combateness and Destructiveness, a boy will the more readily acquire the habit of acting in this manner, the larger these organs are in his brain, and the less controlled by others. If these organs be small, or if the higher organs decidedly predominate, the boy will be naturally indisposed to quarrelling, and will acquire the habit of it with great difficulty, wherever he may be placed. He may repel unjust aggressions made upon him, but he will not be the promoter of mischief, or a leader in the broils of his companions. Many boys can never acquire the habit of quarrelling, even though urged to it by circumstances.¹

Exercise strengthens the *organs* and causes them to act with greater facility,² and in this way the *real* effects of habit, which are important, may be accounted for; but the organ must possess considerable natural power and activity to

¹ See these views illustrated in the case of John Linn, *Phren. Journ.* vol. x. p. 207.

² See vol. i. p. 165.

render it susceptible of the exercise by which habit is formed. The practice of debate by barristers gives them great facility in delivering extemporaneous harangues, compared with that enjoyed by persons whose avocations never lead them to make speeches ; and this facility may be said to be acquired by the habit of speaking ; but it will always bear a proportion to the original endowment of the faculties ; and we shall find, that, while habit gives to one individual great fluency and copiousness of diction, it often leaves another in much poverty of speech and embarrassment of utterance. The powers of both will be greatly superior to what they would have been without the practice of speaking ; but disparity in eloquence will continue to characterize them, owing to differences in their original constitution.

The metaphysicians, as we have seen, attribute many important mental phenomena to the effects of habit, and yet they altogether neglect the influence of organization on the mind. According to our views, it is the organ which acquires strength, activity, and superior facility in performing its functions by being properly exercised, just as the fingers of the musician acquire facility of motion by the practice of playing : The effects of habit in giving readiness and ease are thus accounted for in a manner that is at least intelligible and supported by analogy. The metaphysicians, on the other hand, must imagine that it is the immaterial principle itself which is improved by exercise, and gains strength by habit,—a notion which is altogether inconceivable, and in opposition to the attributes of a purely spiritual being. Farther, Phrenology teaches that the mental organs are distinct ; and that it is quite possible to exercise one organ, and leave another unemployed. This doctrine explains why, by practising music, we do not acquire the habit of speaking or writing with facility ; and why, by studying mathematics, we do not acquire the habit of reasoning deeply in moral or political science. Those physiologists, however, who hold the brain to be a single organ, and every part of it to be engaged in every act of the mind, ought to shew how it happens,

that exercising it in one way does not improve it in all ; or, to use an illustration applied by Dr Johnson to genius, why the man who is able to walk east can possibly fail in the power of walking west. If the organs by means of which he walks east be *different* from those by which he walks west, no difficulty will occur ; but if they be *the same*, some portion of ingenuity on the part of the disciples of the old school will be necessary to account for the supposed deficiency.

TASTE. Mr Stewart speaks of Taste as a power or faculty, and, as already mentioned, supposes it to be acquired by habit. I am not aware that any other metaphysician coincides with him in these views ; but a great deal has been written on the subject, and no satisfactory theory of it, except that of Sir G. S. Mackenzie,¹ exists. I shall point out the manner in which it might be treated phrenologically ; but the subject is too extensive to allow me to enter into it in detail.

In the *first* place, every act of the mind must be a manifestation of some faculty or other ; and every act must be characterized either by bad taste or good taste, or be wholly indifferent in this respect. Let us inquire into the origin of bad taste, and this will lead us to distinguish its opposite, or correct taste. Bad taste, then, appears to arise from an excessive or improper manifestation of any of the faculties. Lord Byron is guilty of very bad taste in some passages of *Don Juan*, in which he exhibits the passion of love in all the grossness of an animal feeling : this arises from an excessive manifestation of Amativeness, not purified and dignified by the moral sentiments and reflection. In the same work, there is a scene in a boat, in which *Don Juan* and his companions are made to devour his tutor. To a being under the sole dominion of Destructiveness, such a representation may perhaps be gratifying ; but unless this propensity be very powerful, it will be impossible for any mind deliberately to invent

¹ *An Essay on some subjects connected with Taste.* By Sir George Stewart Mackenzie, Bart. Edin. 1817.

and enjoy such a picture of human misery. No thoughtlessness, levity, freak of fancy, or other folly, could produce it, without a predominant Destructiveness. This great defect of taste, therefore, may be ascribed to an excessive manifestation of this faculty, uncontrolled by Benevolence, or other higher feelings. Moore, also, in his earlier verses, was guilty of sins against taste, from excessive manifestations of the amative propensity; but this error he has corrected in his later productions.

Faults in taste, arise not only from unbecoming manifestations of the lower propensities, but also from an inordinate expression of the sentiments and intellectual faculties. In *Peter Bell* and *Christabell*, and in the productions of the Lake school of poetry in general, much bad taste springs from mawkish and infantine manifestations of Benevolence, Philoprogenitiveness, and Adhesiveness. Even Ideality itself may be abused. It is undoubtedly the faculty which produces the emotion of the beautiful, but in excess, it degenerates into bombast, rant, and exaggeration; and it may then give rise to that species of composition which a contemporary critic has appropriately designated by the epithet of "drunken sublimity." Wordsworth affords examples of errors in taste, arising from an abuse of Causality; he introduces abstruse and unintelligible metaphysical disquisitions into his poetry, and mystifies it, instead of rendering it profound. Homer, also, sometimes offends against correct taste by overloading his descriptions with similes, under the influence of Comparison.

Farther, the expression of any sentiment or propensity in an undue degree in conversation or conduct, is essentially characteristic of bad taste. An excess of vanity, and the tendency to engross conversation, is one form of it which occurs in society, and arises from over-active Love of Approbation and Self-Esteem; the tendency to wrangle, dispute, and contradict, is another, springing from excessive activity of Combativeness. The disposition to flatter, and utter a profusion of agreeable things to persons whom we do not

esteem, but wish to please, is also characterized by bad taste, and arises from an improper manifestation of Secretiveness and Love of Approbation.

The question naturally occurs, What is the distinction between bad taste and bad morality? I would answer, that bad morality always implies bad taste, for it springs from an improper manifestation of the lower feelings to the outrage of the sentiments of Justice, Benevolence, and Veneration. Bad taste, however, may occur, without immorality, and this arises from an undue activity of any of the faculties, without offence against any of the higher sentiments. The effeminacies of *Peter Bell*, for example, stand low enough in the scale of taste; but as the greatest tenderness for asses does not necessarily imply any breach of justice, kindness, or respect to other beings, the taste only is bad, and not the morality. In like manner, when an individual, under the influence of an excessive Self-Esteem and Love of Approbation, constitutes himself the *bore* of a party,—as his offence does not amount to a serious attack upon such rights as are defended by the sentiments of Conscientiousness, Veneration, and Benevolence, we set him down as ill-bred, but not as immoral.

Chesterfield, and some dictators in manners, deliberately recommend slight offences against candour, not only as not liable to the imputation of bad taste, but as essential to good taste. Thus, Chesterfield admits a great deal of deceitful compliance into his characteristics of a gentleman; but, with great deference to his Lordship's authority, I cannot subscribe to the doctrine that bad morality and good taste are ever, or in any degree, compatible in the same action. An individual may act very improperly in some instances, and shew considerable refinement in others; but this is easily understood: for the higher sentiments may co-exist with strong animal propensities, and one occasion may call forth the former, and another excite only the latter, so that the conduct may thus assume different aspects at different times. The question, however, is, Whether the *same* action can be characterized both as immoral and as distinguished by

good taste? In my opinion it cannot. It is good taste to restrain the expression of our views or opinions in society, when an opposite conduct could cause only dissensions and broils; but this is good morality also. Chesterfield, however, goes farther, and allows, as perfectly compatible with good manners, an expression of sentiments which we do not entertain, if they be pleasing to those to whom we address them; and this is a breach of candour. Such a practice is an insult to the person who is the object of it; and if he saw the real motives he would feel it to be so. Nothing which, when examined in all its lights, and seen in its true colours, is essentially unprincipled, can possibly be correct in point of taste; it has only the appearance, and not the true elements of politeness. Purity in the motive is requisite equally to good taste and to sound morality; for the motive determines the essential quality of the action.

The sources of good taste may now be adverted to. The nervous and sanguine temperaments, by giving fineness to the substance, and vivacity to the action of the brain, are highly conducive to refinement. All authors and artists whose works are characterized by great delicacy and beauty, have fine temperaments, along with Ideality. The most exquisite mental manifestations are those which proceed from a favourable combination of the whole organs, in which each contributes a share of its own good qualities, and is restrained by the others from committing abuses. If a favourable development of this kind be possessed, the higher Ideality rises,—without being excessive,—and the finer the temperament, the more perfect will be the taste. There may, however, be much good taste, of a simple kind, with moderate Ideality, if the other faculties be favourably balanced.

As Taste arises from fine quality of brain, and a favourable combination of organs, the explanation is simple, how it may be possessed without genius. Genius springs from great vigour and activity in the organs, depending on large size, and a high temperament: these are greater endowments than equal development, and an individual may be

deficient in them, and yet be so favourably constituted, with respect to the *balance of his powers*, as to feel acutely the excellencies or the faults of genius manifested by others. Hence many persons are really excellent critics, who could not themselves produce original works of value ; hence also, many original authors of great reputation, display very questionable taste.

In applying these principles to actual cases, I find them borne out by numerous facts. Dr Chalmers occasionally sins against taste, and in his head Ideality and Comparison are out of due proportion to Causality, and some other organs. In Lord Jeffrey's bust, on the contrary, there is a very beautiful and regular development of Eventuality, Comparison, and Causality, with a fair balance between the propensities and sentiments ; his temperament is nervous-bilious ; and his taste is generally excellent.

As good taste is the result of the harmonious action of the faculties, we are able to perceive why taste is susceptible of great improvement by cultivation. An author frequently reasons as profoundly, or soars as loftily, in his first essay, as after practice in writing for twenty years ; but at the outset of his career he rarely manifests the same tact which he subsequently acquires by study and the admonitions of a discriminative criticism. Reasoning depends on Causality and Comparison, and lofty flights of imagination on Ideality ; and if the organs of these faculties be large, they will execute their functions intuitively, and carry the author forward, from the first, on a bold and powerful wing : but as taste depends on the balancing and adjusting, the suppressing and elevating, the ordering and arranging of his thoughts and emotions, so as to produce a general harmony of the whole ; —it is only practice, reflection, and comparison with higher standards, that will enable him successfully to approximate to excellence ; and even these aids will suffice only when the organs are by nature combined in pretty equal proportions ; for if the balance preponderate greatly in any particular direction, no effort will produce exquisite adjustment.

Much has been written about a *standard* of taste ; and in

considering this question a distinction should be made. If, by fixing a standard, we mean determining particular objects, or qualities of objects, which all men shall regard as beautiful, the attempt must necessarily be vain. A person well endowed with Form, Size, and Ideality, may experience the most delightful emotions of beauty from contemplating a Grecian temple, in which another individual, in whom these organs are very deficient, may perceive nothing but stone and mortar. In an arrangement of colours, one individual may discover beauty which is quite imperceptible to a person deficient in the organ of Colouring. Or one may be delighted with music, in which another, through imperfection in the organ of Tune, may perceive no melody. Thus no object, and no qualities of objects, can be fixed upon, which *all mankind*, whatever be their original constitution, will unanimously acknowledge to be beautiful ; and in this view no standard of taste exists.

But *degrees of beauty* may be estimated, in which sense a scale at least, if not a standard, of taste may be framed. The more favourable the original constitution of an individual is, and the greater the cultivation bestowed on his powers, the higher authority he becomes in questions of taste. The existence of a sentiment of Justice has been denied, because individuals are found in whom it is so weak that they seem scarcely to experience the emotion which it produces ; but Phrenology, by pointing out their defect, shews that such persons form exceptions to a general rule, and no one thinks of appealing to them as authorities to determine whether any particular action be just or unjust. In like manner, men deficient in the organs which give the perception of beauty, are not authorities in taste ; but that individual is the highest judge in whom the most favourable development of the organs of propensity, sentiment, and intellect, is combined with a fine temperament and large Ideality ; and who, besides, has cultivated his faculties with the greatest assiduity. His determinations in regard to degrees of beauty in objects, will form the best standards of taste which our imperfect nature is capable of attaining.

EFFECTS OF SIZE IN THE ORGANS ON THE MANIFESTATIONS OF THE FACULTIES.

HAVING now unfolded the organs of the primitive faculties (so far as discovered), with their modes of action, I proceed to treat of their effects when acting in combination. In order to understand this subject, it is necessary, in the first place, to attend particularly to the effects of size in the organs on the manifestations of the faculties.

The reader is referred to the distinction between *power* and *activity* in the mind, stated in vol. i. p. 166. *Cæteris paribus*, size in the organs is the measure of power in the faculties.

As great size in the organs is an indispensable requisite to the manifestation of mental vigour, no instance should occur, in which an individual with a small brain, has manifested clearly and unequivocally, great force of character, animal, moral, and intellectual, such as belonged to Bruce, Bonaparte, Cromwell, or Fox; and such, accordingly, phrenologists affirm to be the fact. The Phrenological Society possesses casts of skulls or heads of Bruce, La Fontaine, Sir Edward Parry, Rammohun Roy, and other men distinguished by great power of mind, and they are all large. The busts and portraits of Lord Bacon, Shakspeare, and Bonaparte, indicate large heads; and among living characters no individual has occurred to my observation who leaves a vivid impression of mental greatness on the public mind, and yet presents a small brain.

Size in each organ, or in each group of organs, produces power in it or in them alone: For example, if the organs of the propensities be large, indicated by a large mass of brain in the basilar and posterior regions, we must not expect great intellectual power and distinguished moral sentiments; or, if the anterior lobe be large and all the other parts of the

brain be small, we may expect vigorous intellect, but not strong emotions and desires.

The European head is distinguished from the Asiatic and native American, not more by difference of form than of size. The European is larger, and the superior energy of this variety of mankind is well known. The heads of men are larger than those of women, and the latter obey; or, to bring the point to the clearest demonstration, we need only to compare the head of a child with that of a full grown man, or of an idiot with that of Rammohun Roy, as represented in vol. i. p. 45. If, then, in extreme cases, size be so clearly a concomitant of power, we are not to presume that, in any instance, even where the differences are so minute that the eye is scarcely able to detect them, it ceases altogether to exert an influence. The rule, *Extremis probatis, media presumuntur*, is completely applicable here.

The doctrine, that power is a characteristic of mind, distinguishable at once from mere intellectual acumen and also from activity, is one of great practical importance; and it explains a variety of phenomena of which we previously possessed no satisfactory theory. In society we meet with persons whose whole manner is little, whom we intuitively feel to be unfit for any great enterprize or arduous duty, and who are nevertheless distinguished for amiable feelings and good sense. This springs from a small brain favourably proportioned in its parts. Other individuals, again, with far less polish, inferior information, and fewer amiable qualities, impress us with a sentiment of their power, force, energy, or greatness; we feel that they have weight, and that, if acting against us, they would prove formidable opponents. This arises from great size. Bonaparte, who had an admirable tact in judging of many of the qualities of mind, distinguishes between mere cleverness and force of character, and almost always prefers the latter. In his Memoirs, he speaks of some of his generals as possessing talents, intellect, and book-learning, but as still being nobody--as wanting that weight and comprehensiveness which fit a man for great en-

terprises: while he adverts to others as possessing limited intellect and little judgment, but prodigious force of character; and considers them as admirably adapted by this last quality to lead soldiers through peril and difficulty, provided they be directed by minds superior to their own. Murat was such a man; and Bonaparte appears on the whole to have liked such officers; for they did not trouble him with thinking for themselves, while they possessed energy adequate to the execution of his most gigantic designs. The leader of a popular party who has risen to that rank by election, or assumed it with acquiescence, will be found to have a large brain. To the commanders of fleets and armies also a similar endowment is necessary, for otherwise they would possess artificial authority without natural weight, and would never inspire confidence in their followers. Bonaparte had a large head;¹ and officers and soldiers, citizens and statesmen, bowed before his mental greatness, however much they might detest the use he made of his power. In him, all the organs, animal, moral, and intellectual (Conscientiousness, and perhaps Firmness, excepted), seem to have been large; great activity was added; and hence arose commanding energy, combined with profound and comprehensive intellectual capacity.

The Society possesses casts of the heads of Captains Franklin and Parry; and both are decidedly large, with an excellent proportion in the different orders of organs. These commanders displayed great force of character in their respective expeditions in quest of a North-west passage. No tendency to mutiny, or insubordination, occurred even in the most trying circumstances; and this would be the case, because the men under their command would instinctively feel natural superiority coinciding with artificial rank.

¹ The mask of Napoleon which is generally sold in the shops is authentic. It shews a very long anterior lobe from front to back, and its breadth is considerable. It appears narrower than it is, in consequence of its great length. It is impossible to look at the forehead of the American statesman, Daniel Webster, without being impressed by the greatness of the intellectual power which it expresses, and he manifests a gigantic intellect.

The men who are able, without feeling encumbered, to attend to their private duties, and at the same time carry a load of public business on their minds, owe this quality to great size in the brain, with an active temperament, and large knowing organs. Those who, having small brains, find their whole powers absorbed and exhausted by their particular occupations, wonder at such men, and cannot comprehend either their motives, or the means by which they accomplish so much. It is power which distinguishes them; so that duties which to others would prove oppressive, press lightly on them, or afford them only amusement. Mr Joseph Hume, M. P., is a striking illustration of this doctrine. He possesses moderate organs of Causality, little Wit, less Ideality, and no great endowment of Language: yet even his opponents allow him to manifest great force of character, with a power of application and perseverance which to ordinary minds is incomprehensible. If we look at the large brain indicated in his cast, and attend to the combination of organs which it displays, we shall perceive the source of his weight. Dr Spurzheim also shewed great force of character, and his brain was large. This quality in him was the source of the intense and long enduring interest which he created and supported in the minds of those who came in contact with him. He was calm, mild, and unobtrusive, yet there was a degree of depth and power about him, which made lasting impressions on those who listened to his public discourses, or conversed with him in private.

Dr SPURZHEIM.



In examining the heads of criminals in jail, I have found the most daring, desperate, and energetic to possess large brains. When great size and an unfavourable combination

occur together, the officers of justice are reduced to despair in attempting to correct the offender. They feel a strength of character which they cannot subdue, and an evil bent which they cannot direct ;—the result generally is a report from the police that the individual is incorrigible ; his first serious offence is prosecuted to extremity, and he is transported or hanged for the sake of protecting society from farther mischief. In professional pursuits, also, the men who are indisputably paramount to their fellows not merely in cleverness, but in depth and force of character, have large heads ; and this holds, not only in the learned professions, but in mercantile avocations. I have observed that individuals who, born in indigence, have acquired wealth, by conducting great and extensive establishments, have uniformly brains above an average size ; and that mercantile travellers who succeed in procuring orders, and pushing a trade amidst a keen and arduous competition, are distinguished by the same quality. Such men make an impression, and act with a confidence of power, which gives effect to all they say or do. In a school, if the children care nothing for the master and treat him with disrespect, and if he fail, after using every severity, to maintain discipline and subordination, he will be found to have a small brain. In the domestic circle, if the mistress of a family (while in good health) is easily overcome, annoyed and oppressed with the cares and duties of her household, the origin of the evil will be found in too small a head.

In the Church, the effects of size are equally conspicuous. A preacher with a large brain, the moral and intellectual regions predominating, is felt by his flock to possess weight, and they submit willingly to be led and taught by him, while they treat with indifference the feebleness that accompanies a little head. If, as occasionally happens, a preacher possess an excellent combination, that is, the organs of the sentiments and intellect large in proportion to those of the animal propensities, he may be acute, amiable, sensible, and interesting ;

but if the general size of his brain be under an average, he will not be impressive and commanding.

The principle that size gives power of manifestation, forms the key to the following criticism on Dr Chalmers. "His manner, so far from being graceful," says a contemporary writer, "is very nearly uncouth; his tones are neither musical, nor under strict subordination; in the selection of words, and management of figures, his taste, so far from being pure, is sometimes very much the reverse; his pronunciation, though vigorous and distinct, is beset with provincialisms, which time and a city audience have done very little to correct; and as to gesture, wherever we have heard him, he appeared to be totally unconscious that he had got such a thing as hands and arms to manage. In what, then, it may be asked, consists the secret of the Doctor's eloquence? Simply, as we take it, in this,—that, *while his arguments and illustrations are for the most part striking and original*, he possesses *prodigious enthusiasm and energy* in enforcing them; that the defects of his rhetoric are completely lost in the force of his ratiocination; that while he has *mathematics or logic* enough to make his reasoning acute, grasping, and irresistible, he has *poetry* enough to prevent it from being dull; thus evincing the very highest species of intellect, the union of a *sound and comprehensive judgment*, with a *fertile and brilliant imagination*. We have said he possesses *energy*, and this we take to be the great and redeeming quality of his manner, compared to which the tiny graces sink into insignificance. Whether we are facile or fastidious, whether we like or dislike the preacher's doctrine, one thing is certain, *he forces us to attend to him. A man might easily get his pocket picked while listening to Dr Chalmers, but we defy him to fall asleep.*" The head of Dr Chalmers indicates a large brain.

In authorship, the same law holds good. Critics have been puzzled to account for the high rank which Dr Samuel Johnson holds in English literature, and to discover the mental qualities on which his eminence is founded. He has made

no discoveries in morals or in science to captivate the mind. His style is stately and sonorous, and his arrangement in general good ; but equal or superior graces may be found in Goldsmith, Thomson, and other authors, whom nobody would compare with him in power. His great characteristic is force and weight ; and these are the concomitants of great size of brain. Milton's writings are highly distinguished by vigour, as are also those of Locke. Addison, on the other hand, is a specimen of genius produced by a felicitous combination of sentiment and intellect, without preponderating energy from great size. Power is the leading charm of Swift's writings ; he is not graceful, and is far from elegant ; his reasoning is frequently superficial, and his conclusions questionable. But he is rarely feeble. Strength, energy, and determination mark every page. His skull indicates a large brain, particularly in the region of the propensities.

Large size, to produce its full effects, must be accompanied by sound health and an active temperament, as explained in vol. i. pp. 49 and 54 ; but these, although necessary to its influence, will never compensate for its absence. Large lungs, by sending a copious supply of highly oxygenized blood to the brain, add greatly to the vigour of the mental manifestations.

ACTIVITY in the organs, on the other hand, gives liveliness, quickness, or rapidity. Dr Spurzheim thinks that long fibres contribute to activity. The sanguine and nervous temperaments described in vol. i., p. 50, and p. 163, afford external indications of constitutional activity. Moderate size of brain, with favourable proportions among the organs, and much activity, produce what is commonly called *cleverness* in ordinary life : an individual thus constituted will form ideas rapidly, be active in business, shew tact and discrimination, and prove himself a valuable and useful member of society ; but he must not be loaded with too many duties, or opposed by obstacles, nor must the field in which he is called on to labour be too extensive.

Great errors are often committed in society through ignorance of these principles. An individual possessing a small brain, but a fine temperament, and favourable combination, perhaps distinguishes himself in a limited and subordinate sphere, or he makes one great and successful effort, in which his powers are tasked to the utmost extent of their limits.—The notion is then adopted that he is very clever, fit for higher duties, and capable of exhibiting habitually the force of mind thus displayed on a single occasion. He is, in consequence, promoted to a more arduous station. He continues to execute small matters so well, that it is difficult to point out instances of specific failure in his duties; yet want of success occurs, a general impression of his incapacity arises, discontent increases, and at last, after great suffering to himself, and annoyance to his employers, he is dismissed. The small brain is the origin of the incapacity; and ignorance of its effects the cause of his being misplaced.

Mankind, in extreme cases, recognise energy or feebleness of mental character, and modify their conduct accordingly. Those in whom moral and religious principles do not constitute the habitual rule of conduct, treat individuals in the most different manner, according to the impression which they receive from their manner, and the estimate which they form from it of their strength or weakness of mind. There are men who carry in their very look the intimation of greatness—whose manner at once proclaims, "*Nemo me impune lacesset.*" The world reads this notice, and holds it safest to allow them to follow their own course without obstruction, while they avoid giving offence. Contrasted with them, are the feeble and vacillating; men unstable as water, unsteady as the wind. The wicked seize upon them, and make them their prey. The treatment received by different persons from society is thus widely different; and it may be truly said, that a large portion of mankind cannot easily conceive the miseries inflicted on the weak by the powerful and unprincipled in taking advantage of their deficiencies.

When a favourable combination, a fine temperament, and large size of brain, are conjoined in an individual, they con-

stitute the perfection of genius. This I conceive to have been the case in Homer and in Shakspeare. Vivacious buoyancy, ease, and fertility, arising from the first and second causes, joined with depth, strength, comprehensiveness, and masculine energy, the result of the third, place these authors above all others whom the world has ever seen. And when we consider that these rare and splendid gifts must again be united, before their equals can appear, we shall have no difficulty in conceiving why so few Homers and Shakspeares are given to the world.

In these observations, I have treated of the effects of size in the brain in general on the general manifestations of the mind, to bring the doctrine clearly and forcibly before the reader ; but I again beg of him not to fall into the error of taking *general* size as an indication of *particular* power, for then difficulties without end will be encountered. For example, it has often been objected, that a particular individual wears a large hat, indicating a large brain, and that yet he has no great scope of *intellect*, and no ability, in the general sense of the term. The answer is, that we must look for the *power* in the *direction of the size*, as explained in vol. i. p. 158. If the large hat be requisite, on account of a great development of the animal organs, we must expect the individual to be only a powerful *animal* ; and he may be this, and at the same time a weak *man*. If the size predominate in the region of the sentiments, we may then look for greatness in moral worth ; but it is only when great size, combined with an active temperament, pervades the organs of the whole three classes of faculties, propensities, sentiments, and intellect, that Phrenology authorizes us to expect a general character vigorous, comprehensive, and profound. The hat does not indicate the size either of the moral organs or of those of the intellect.

The circumstances which *modify the effects of size* have already been stated (vol. i. p. 49 and 162), when treating of the principles of the science.

It is an important question whether the size of the organs

may be increased by exercise, and diminished by inactivity. The following considerations may serve to guide us in forming an opinion on this subject.

First, It is a general law in physiology, that any part of the body, when called into vivid activity, not transgressing the bounds of health, attracts towards itself an increased supply of arterial blood and of nervous influence. The effect of these is to increase its tone and also its size. But there are limits to these effects. The blacksmith's arm does not by exercise continue to grow indefinitely. It attains a limit which it never passes. To the growth of all our organs, Nature appears to fix boundaries which they cannot exceed, except by diseased action. A man of a naturally slender frame, may be rendered larger and more robust by exercise than he would have been without it; but he cannot be augmented into an equality in dimensions and strength with a man who was naturally large and strong, and whose qualities have been fostered and developed by equally judicious treatment. The same rule holds in regard to the brain. In every individual, Nature appears to have set limits to the size of every organ, within which limits judicious exercise will add to its bulk and power. But I have not observed that when, in any individual, the brain, or any single organ, is naturally small, exercise can render it equal in magnitude to another brain or organ naturally large, and treated in the same way.

Secondly, It is a general law of animal nature, that an organ, if not duly exercised, attracts a small supply of arterial blood and nervous influence towards it, and in consequence, it either does not fully develope itself, or it diminishes in size and tone, and its functional power decreases in proportion. This rule applies in regard to every organ of the brain.

Thirdly, The cerebral organs increase spontaneously in size in most individuals up to twenty-one, or twenty-two, in many to twenty-eight, and, according to Dr Gall, in some instances up even to forty years of age. I have seen organs manifestly increase between twenty and twenty-eight, without any special effort being made to develope them by ex-

exercising the faculties ; and the mental powers evolved themselves, uncalled for, in correspondence with the increase of size in the organs. In observing cases of increase of growth, accompanied by exercise, within these ages, it is difficult to determine how far the growth is the spontaneous act of nature, and how far exercise has *caused* it. That exercise *favoured* it, and that inaction might have *retarded* or perhaps *prevented* it, is highly probable, nay, almost certain : But I have not seen facts sufficient to warrant me to affirm that, in every case, every organ may be fostered into large or even into average dimensions by exercise, although it be naturally small. On the contrary, I know facts that shew that Nature sets limits to organs (in some instances very narrow limits), which cannot be surpassed. My own organ of Number is very defective in size. I exercised it regularly, and up to the limit of its powers, during forty years, commencing when I was eight years of age, and it has never grown, nor has the function increased in power. I never could, and cannot now, add, divide, multiply, or subtract numbers with even average accuracy and facility. I had a sister who, during seven years in youth, exercised her organ of Tune, which was naturally small, with the most exemplary assiduity and perseverance, believing that nothing is denied to well-directed industry ; but it never grew, and she could not at the end of that time play even common airs on the pianoforte with facility or expression. She had good organs of Language, Individuality, and Reflection, and she acquired the French and Italian languages, and a correct and copious English style, within a shorter time, and with one-tenth part of the labour. Both in her and me the temperament was nervous-bilious. I could cite many other examples. The Ethiopian cannot change his skin, nor the leopard his spots ; and my present impression is, that human efforts can develop the brain only up to certain definite limits established, in the case of every individual, by nature. Moreover, it appears to me that a variety of dispositions and talents among men is essential to the existence of society, and that this variety is se-

cured by bestowing on each individual an endowment of brain in some degree peculiar in the relative proportions of its parts, and that Nature has denied to man the power of introducing into the race universal mental equality,—a result which seems to be implied in the proposition that all the organs of the mind may be increased or diminished indefinitely by exercise or neglect. I am here speaking of the effects of exercise on the organs of individuals. It is probable that exercise in the parents of particular organs predisposes the corresponding organs to increase in size in their offspring.

Cases, however, are on record, in which particular parts of the brain have increased in size by exercise, and others in which they have diminished by inactivity, even after forty years of age. I do not deny these facts, although some evidence of this increase has been presented to me which was fallacious. The individual, of whose head casts taken at different ages were exhibited, had, when the later casts were taken, become more corpulent, and the integuments were thicker, than when the first were moulded. The nose, for instance, and the cheek-bones, had increased as much as the forehead. Other cases, however, were shewn to me in which there was an increase of size in the later casts, not referable to this cause; and I am disposed to admit the possibility of this increase in some constitutions. It is strongly advocated by Dr Caldwell, no mean authority, in *The American Phrenological Journal*, vol. i. p. 404; and Dr Spurzheim says, "I can speak with certainty from repeated observations. The changes of cerebral development, when the individual powers are exercised, or kept quiet, are astonishing. In the former case, individual organs increase, and in the latter, they not only stand still in growth, but sometimes become absolutely small."—*View of the Elementary Principles of Education*, 1832, p. 131, American Edition. See also *Practical Phrenology*, by Silas Jones, Boston, 1836, *Phrenological Journal*, vol. vii. p. 373, and an able article on this whole question by Dr A. Combe in the *Phrenological Journal*, vol. x. p. 414. See also same volume, pp. 272, 426, and 503; also a case reported in vol. xi. p. 296,

in which blindness in one eye was accompanied by deficiency of the organ of Colouring on the opposite side of the brain. On the other hand, I may mention that, in 1824, a gentleman of nervous-bilious temperament, aged 36, with whom I am intimately acquainted, had his head shaved and an accurate cast of it taken. In 1838, I saw his head measured in every direction with callipers, and compared with this cast, and not a line of difference was perceptible. During the whole interval, his brain had been actively exercised in moral and intellectual pursuits. I have casts of the heads of several distinguished phrenologists taken ten and fifteen years ago, after maturity, and I do not now perceive any change in the size of their heads, or in the proportions of the individual organs. This susceptibility of change from exercise, in mature life, therefore, appears not to be universal, but peculiar to some individual constitutions. Those who report cases of changes of size, should state accurately the temperament, and also the age, at each period of observation. Without this information, we cannot distinguish between spontaneous growth, and that which may fairly be ascribed to exercise.

COMBINATIONS IN SIZE, OR EFFECTS OF THE ORGANS WHEN
COMBINED IN DIFFERENT RELATIVE PROPORTIONS.

THE primitive functions of each organ were *discovered*, by observing cases in which it decidedly preponderated over, or fell short of, other organs, in point of size; and by similar observations each must still be verified. After the discovery is established, its practical application deserves attention. Every individual above idiocy possesses all the organs; but they are combined in different degrees of relative size in different persons, and the manifestations of each organ are modified in some degree by the influence of those with which it is combined. The effect of combination, however, is not to *change* the functions of any organ, but only to modify the *manner* in which it is manifested; or the acts in which it

seeks gratification. If, for example, the organ of Tune be equally large in two individuals,—but if, in one of them, the organs of the animal propensities predominate, he may manifest it in producing bacchanalian songs; while, if, in the other, the organs of the moral sentiments predominate, he may employ it in composing sacred melodies. In both instances, Tune produces music, the only effect of the combination being to alter its direction. This illustration is applicable to all the faculties; and shews that, although the functions of some parts of the brain are still unascertained, the discovery of them cannot alter the functions of those already known.

Dr Gall,¹ in considering the combinations of the organs, divides men into six classes.

In individuals composing his first class, the organs of the highest qualities and faculties are completely developed, while those of the faculties common to man with the lower animals possess only a feeble degree of development and activity. The dispositions and conduct of persons of this class are in accordance with reason, justice, and morality.

In the *second* class, the combination is precisely reversed, and the individuals belonging to it are the slaves of sensuality and error.

In the *third* class, the animal organs, and also those peculiar to man, have acquired a considerable degree of development and activity. Men belonging to this class may be great in virtue or vice, and often manifest the most opposite qualities. They experience the internal struggle of the higher and lower elements of our nature. Socrates, St Paul, and Saint Augustin, belonged to it.

In the *fourth* class, one, or a few, of the organs are highly developed, while the others are only moderately so, or even below mediocrity. This class includes men of great but partial genius, or men distinguished for great strength of character or for powerful dispositions of a determinate description; such as great musicians, great mechanics, or brave warriors, who, out of these lines, shew no superiority.

¹ *Sur les Fonctions du Cerveau*, tome i. p. 319. 8vo.

In the *fifth* class, one, or several, of the organs are very little developed, and remain inactive, while the others are more favourably developed and energetic. This class includes men of general ability, who have some particular and limited deficiency. Lessing and Tischbein detested music, and Newton and Kant had no passion for women.

In the *sixth* class, the animal organs and those proper to man are nearly equally moderate. In this class is comprehended the great mass of ordinary men. These six divisions, says Dr Gall, are subject to thousands of modifications.

Dr Broussais has a valuable section on this subject, p. 769. He says, that Imitation, Wonder, and Ideality, combined with the knowing organs, produce the theatrical and executive artist.

Dr Vimont¹ observes, that Dr Gall's divisions are insufficient to give a just and complete idea of the combinations of all the faculties, and he makes several judicious observations on these classes, and adds to them two more, viz. Men in whom the perceptive organs predominate over those of reflection; and men who are placed a little above idiots, who have feeble perceptive powers and a nullity of reflection. This class may manifest some talent, such as that of construction, or of music; or they may be distinguished by cunning, stubbornness, or vanity; and never improve. Dr Vimont makes also some valuable observations on the combinations of the organs in the different species of the lower animals, to which I can here only refer.

The limits of the present work prevent me from doing more than stating three rules for estimating the effects of differences in relative size, occurring in the organs of the same brain.

The condition, *cæteris paribus*, is always understood, and therefore needs not to be repeated, in treating of the effects of size.

Having been solicited to state, in methodical order, the effects of the combinations so far as observed, I tried to do so in

¹ *Traité de Phrénologie*, tome ii. p. 459.

the MS. of the present work ; but found the result to be a tedious enumeration of propositions, adapted to Individuality alone, difficult to be remembered, and withal extremely incomplete. I have therefore preferred stating principles chiefly, accompanied by illustrations, to render them intelligible, and to shew their application. This method was adopted in the *Elements* for the sake of brevity, and, on mature examination, it appears to be preferable in itself. The reader in whom the reflecting organs are amply developed, will not only easily comprehend the rules here laid down, but be able greatly to enlarge the sphere of their application.

RULE FIRST.—Every faculty desires gratification with a degree of energy proportionate to the size of its organs ; and those faculties will be habitually indulged, the organs of which are largest in the individual.

Examples.—If the animal organs in general be large, and the organs of the moral sentiments and intellect in general be small, the individual will be naturally prone to animal indulgence in the highest degree, and disposed to seek gratification in the directest way, and in the lowest pursuits.

If, on the other hand, the organs of the moral sentiments and intellect greatly predominate, the individual will be naturally prone to moral and intellectual pursuits ; such persons are “ a law unto themselves.”

In illustration of this rule, the head of Hare, who was a monster of cold-blooded cruelty in human form, may be contrasted with that of Melancthon the reformer, vol. i. p. 141 ; or the skull of a New Hollander may be compared with that of Dr Spurzheim, both represented in vol. i. p. 57.

In further illustration, the heads of Vitellius, and Hare the murderer, represented in vol. i. pages 146 and 141, may be contrasted with those of Tasso, p. 453, Chaucer and Locke, p. 477, and Michael Angelo, vol. ii. p. 29. In the one class of heads, the basilar and posterior regions of the brain dedicated to the animal propensities, greatly preponderate over the anterior and coronal regions which manifest the intellect

and moral sentiments;¹ in the other, the basilar region is large, but the intellectual and moral decidedly preponderate.

According to the rule before stated, the first class will be naturally prone to low and degrading pursuits, having for their object the gratification of Amativeness, Destructiveness, Acquisitiveness, and other inferior feelings; they will possess very few aspirations after the noble and beneficent virtues which dignify human nature; they will, only in the lowest degree, realize in their own minds the obligations of justice, piety, and mercy, and be very little capable of appreciating the advantages of science. The second class will form a direct contrast to them. They will naturally feel the incumbency of moral duty and the excellence of intellectual pursuits; they will ardently desire to advance in the career of improvement, and instinctively love every virtue and attainment that is calculated to increase the true dignity and happiness of man. It is common for individuals, in judging of mankind in general, to assume themselves as standards of the race; yet no criterion can be more fallacious: the consciousness of men belonging to the inferior class would represent the human mind as base, grovelling, and selfish,—that of the higher as elevated, benignant, and intellectual.

RULE SECOND.—As there are three kinds of faculties, propensitive, moral, and intellectual, which are not homogeneous, it may happen that several large organs of propensities are combined, in the same individual, with several moral and intellectual organs highly developed. The rule, then, will be, that the lower propensities will take their *direction* from the higher powers; and such a course of action will be habitually followed as will be calculated to gratify the whole faculties whose organs are large.

In this combination, the strong propensities may escape,

¹ The size of the coronal region is best judged of by the height and breadth of the brain above Cautiousness and Causality, the situation of which organs is indicated in some of the figures by asterisks. Wherever that region is shallow or narrow, the moral feelings will be comparatively feeble. See vol. i. p. 141.

at intervals, from the control of the sentiments, and produce abuses ; but as nature has rendered the moral and intellectual faculties the directing powers, the *habitual* conduct will be such as will be consistent with their dictates, and at the same time gratifying to the propensities.

Examples.—If the organs of Acquisitiveness and Conscientiousness be both large, although stealing might gratify Acquisitiveness, it would offend Conscientiousness. According to the rule, the individual will endeavour to gratify both, by acquiring property by lawful industry. If Combativeness and Destructiveness were large, and Benevolence and Conscientiousness also amply developed, while wanton outrage and indiscriminate attack might gratify the first two faculties, they would outrage the last two : hence the individual would seek for situations calculated to gratify all four :—and these may be found in the ranks of an army embodied for the defence of his country, or in moral and intellectual warfare against the patrons of corruption and abuse in church and state. Luther, Knox, and many other benefactors of mankind, were probably actuated by such a combination of faculties ; Washington nobly displayed it.

If the cerebellum be very large, and Philoprogenitiveness, Adhesiveness, and Conscientiousness be deficient, the individual will be prone to seek the directest gratifications of the animal appetite ; if the latter organs also be large, he will find in wedlock the best means of satisfying the whole group.

If Benevolence, Self-Esteem, and Acquisitiveness be all large, giving charity may gratify the first ; but unless the individual be very rich, the act of parting with property may be disagreeable to the last two faculties ; he will, therefore, prefer to gratify Benevolence by acts of kindness ; he will sacrifice time, trouble, influence, and advice, to the welfare of others, but not property. If Benevolence were *small*, with the same combination, he would not give either money or personal advice.

If Love of Approbation large, be combined with large Ideality and moderate reflecting organs, the individual will

be ambitious to excel in the splendour of his equipage, style of living, dress, and rank. If to the same combination be added a powerful intellect and large Conscientiousness, moral and intellectual excellence will be preferred, as the means of obtaining the respect of the world.

An individual in whom Benevolence and Love of Approbation are very large, and Conscientiousness deficient, will be exceedingly kind and attentive to persons of condition who praise him loudly and extol his benevolence; but he will overlook humble, retiring, and unostentatious merit; he will speak much of his own good deeds. If Conscientiousness and Benevolence predominate, the amiable and unpretending will be the first objects of his regard, and the good done will never be proclaimed by himself.

If Self-Esteem large, be combined with deficient Love of Approbation and Conscientiousness, the individual will be prone to gratify his selfish feelings, with little regard to the good opinion, or the just claims of other men. If Self-Esteem large, be combined with large Love of Approbation and Conscientiousness, the former will produce only that degree of self-respect which is essential to dignity of character, and that degree of independence of sentiment without which even virtue cannot be maintained.

If Cautiousness large, be combined with deficient Combateness, the individual will be extremely timid. If Combateness be large, and Cautiousness small, reckless intrepidity will be the result. If Combateness be equally large with Cautiousness, the individual will display courage regulated by prudence. If Cautiousness, Conscientiousness, Self-Esteem, Secretiveness, and Love of Approbation, be all large, and Combateness moderate, bashfulness or *mauvaise honte* will be the consequence. This feeling is the result of the fear of not acquitting one's-self to advantage, and of thereby compromising one's personal dignity.

If Veneration and Hope be large, and Conscientiousness and Benevolence be small, the individual will be naturally fond of religious worship, but averse to the practice of charity

and justice. He will admire doctrinal and dislike moral preachers. If the proportions be reversed, the result will be a constitutional disposition to charity and justice, with no great tendency to the exercise of devotion. If all the four organs be large, the individual will be naturally inclined to engage in the worship of God, and to discharge his duties to men. If Veneration large, be combined with large Acquisitiveness and Love of Approbation, the former sentiment may be directed to superiors in rank and power, as the means of gratifying the desires for wealth and influence depending on the latter faculties. If Veneration be small, combined with Self-Esteem and Firmness large, the individual will not naturally look up with deference to superiors in rank.

The intellectual faculties will naturally tend to such employments as are calculated to gratify the predominant propensities and sentiments. If the organs which constitute a genius for painting be combined with large Acquisitiveness, the individual may paint to become rich; if combined with Acquisitiveness small, and Love of Approbation large, he will probably labour for fame, and starve while attaining it.

Talents for different intellectual pursuits depend on the combinations of the knowing and reflecting organs in certain proportions. Constructiveness, Form, Size, Colouring, Individuality, Ideality, Imitation, and Secretiveness large, with Locality small, will constitute a portrait, but not a landscape painter. Diminish Form and Imitation, and increase Locality, and the result will be a talent for landscape, but not for portrait, painting. Constructiveness and Weight combined with Tune large, may produce a talent for musical instrument making: Without a large Tune the other faculties could not successfully take this direction. Constructiveness combined with Size and Number large, may lead to *mathematical* instrument making. Causality, combined with large knowing organs, Ideality and Imitation, will seek to discover the philosophy of the fine arts; the same organ combined with large Benevolence, Conscientiousness, and Con-

centrativeness, and deficient Imitation, will delight in moral and political investigations. If to Individuality, Eventuality, Comparison, Causality, and Concentrativeness, all large, an equally well developed organ of Language be added, the result will be a talent for authorship or public debate: if Language be small, the other faculties will be more prone to seek gratification in the business of life, or in abstract philosophy.

One great difficulty frequently experienced, is to comprehend the effect of the reflecting powers, added, in a high degree of endowment, to the knowing faculties, when the latter are exercised in particular branches of art, for which they appear to be of themselves altogether sufficient. It is stated, for example, that Form, Size, Individuality, Colouring, and Imitation, combined with Secretiveness, Constructiveness, and Ideality all large, constitute a genius for painting; and it may reasonably be inquired, What effect will the reflecting organs, large or small, produce on the manifestations of this combination? The question may be answered thus:—When the reflecting organs are small, *form, colour, beauty*, constitute the *leading* objects of the painter's productions. There is no story, no event, no combination of incidents, displayed in his works. To appreciate their merits, they must be considered in detail, and, as single objects, unconnected with others by any of the relations perceived by the higher powers. Add the reflecting organs, and outline, form, colouring, perspective, will all sink into the rank of *means*, which the reflecting intellect will employ to accomplish a higher object; such as the expression of some great action or event—some story which speaks to the judgment and interests the feelings—in short, historical painting.

In the portraits of Raphael the organs essential to a painter appear to be large, and those of Causality, Comparison, and Wit, likewise far above an ordinary size. Of the productions of Raphael's¹ pencil an anonymous author says, "In *composition* Raffaello stands pre-eminent. His invention is the re-

¹ *Life of Raphael*, London, 1816, anonymous.

fined emanation of a dramatic mind, and whatever can most interest the feelings, or satisfy the judgment, he selected from nature, and made his own. The point of time, in his historical subjects, is invariably well chosen; and subordinate incidents, while they create a secondary interest, *essentially contribute to the principal event*. Contrast or combination of lines makes no part of his works as an artificial principle of composition; the *nature and character of the event create the forms* best calculated to express them. The individual expression of particular figures corresponds with their character and employment; and whether calm or agitated, they are at all times equally remote from affectation or insipidity. The *general interest* of his subject is *kept up throughout the whole composition; the present action implies the past, and anticipates the future*. If, in sublimity of thought, Raffaello has been surpassed by his great contemporary Michael Angelo,—if, in purity of outline and form, by the antique,—and in colouring and chiaro-oscuro by the Lombard and Venetian schools; yet in *historical compositions* he has no rival; and for *invention, expression, and the power of telling a story*, he has never been approached."

M. Fuseli, speaking of the qualities of Raphael's style as a painter, says, that "perfect human beauty he has not represented. No face of Raphael's is perfectly beautiful; no figure of his, in the abstract, possesses the proportions that could raise it to a standard of imitation. *Form to him was only a vehicle of character or pathos*; and to these he adapted it in a mode, and with a truth, which leaves all attempts at emendation hopeless. His composition always hastens to *the most necessary point as its centre*; and from that disseminates, to that leads back, its rays, all secondary ones. Group, form, and contrast, are subordinate to the event; and commonplace is ever excluded. His expression is unmixed and pure, in strict unison with, and decided by, character, whether calm, animated, agitated, convulsed, or absorbed by the inspiring passion: it *never contradicts its cause*, and is equally remote from tameness and grimace. The moment of his

choice never suffers the action to stagnate or to expire. It is *the moment of transition, the crisis big with the past, and pregnant with the future*. His invention connects the utmost stretch of possibility with the most plausible degree of probability, in a manner that equally surprises our fancy, persuades our judgment, and affects our hearts."

In all this criticism we have the most exact description of the manifestations of Comparison and Causality, which give scope, depth, and force of intellectual conception, the power of combining means to attain an end, and the natural tendency to keep the means in their appropriate place, as subordinate to the main design.

Raphael's genius, accordingly, can be fully appreciated only after having exercised the higher intellectual faculties on his works. Sir Joshua Reynolds acknowledges that it was only after repeated visits, and *deep reflection*, that he discovered their merits, his first impression having been that of mortification and disappointment, from not seeing *at once* all their greatness. The excellence of Raphael's style, says he, is not on the surface, "*but lies deep*, and at the first view is seen but mistily. It is the florid style which strikes at once, and captivates the eye for a time, without ever satisfying the judgment." If, on the other hand, the knowing and constructive organs alone had predominated in Raphael, all these accessaries would have become principals; and the critic who possessed reflective intellect, would have felt in his paintings a decided deficiency of design, story, interest, and object. Hence high reflecting organs are indispensable to historical painting: Haydon, who has manifested great power of conception in this line, possesses them in an eminent degree. The late Sir H. Raeburn, whose style of portrait-painting, in point of dignity and force, approaches the historical, possessed also a full development of the upper part of the forehead, as well as large pictorial organs. In sculpture the same rule holds. The artist who has Form, Size, Constructiveness, and Ideality large, without high reflecting organs, may chisel a vase, or a wreath of flowers; but he will never reach grandeur of

conception, or confer dignity and power upon his productions.

It follows from these principles, that a sculptor or painter will represent one class of objects with greater truth and fidelity than another, according to the particular organs which predominate in his head. Thus, to model the exquisite grace, elegance, and symmetry of the female form, the constructive organs, Ideality, and the moral sentiments, with a fine temperament, may suffice, without much depth and power of reflection. To represent, on the other hand, whether on canvass or in marble, men of superior nature, profound in thought, and elevated and intense in emotion, the artist himself must possess great organs of sentiment and reflection, in addition to the organs of art before described, otherwise he will never be able adequately to conceive or to express these modes of mind. This fortunate combination occurs in conjunction with a fine temperament in Lawrence Macdonald, and hence the admirable qualities for which his sculpture is already so highly distinguished.

The same rules hold in architecture and music. An architect possessing only the knowing organs large, may produce the plan of a common house, or of any other simple object, with success; but he should never attempt a work in which profound thought and extensive combinations are indispensable to success. From not attending to this fact, many abortions in architectural designs occur in this country. An artist, with a constructive and knowing head, may produce a plan which will look well on paper, and which, as a mere drawing, may be really beautiful; but if the reflecting organs be deficient, he will be incapable of considering the intended fabric in its relations to surrounding objects, and of divining how it will affect the mind, when presented in contrast with them:—hence, when executed, it may turn out a deformity. Add, however, the reflecting organs, and the effects of collateral objects will be anticipated and provided for. An architect, in whom the reflecting organs are large, and the knowing organs deficient, will fail in the practical arrangement of details.

The musician, in like manner, who is able to express thought, feeling, and emotion, with exquisite effect, with whom sound is subordinate to sense, design, and expression, will be found to possess the higher powers in addition to the merely musical faculties.

In oratory, too, a person with Individuality, Eventuality, Comparison, Ideality, and Language, may be erudite, fluent, brilliant, and, if propensity and sentiment be added, vehement, pathetic, or sublime; but, to give great comprehensiveness, deep sagacity, and a talent for profound elucidation of principle, Causality must be joined to the combination.

Taste in every branch of the fine arts is distinguishable from power and comprehensiveness, and depends, as already explained,¹ on a *harmonious combination*, and due cultivation, of the organs in general. In Raphael these requisites seem to have occurred; and it is because nature rarely combines the particular organs which constitute a painter, high reflecting organs, large general size, harmonious proportion, and natural activity,—all in one person, that so few Raphaels appear.

In no instance is it a matter of indifference to the talents and dispositions of the individual, whether any particular organ be large or small. If it be large, although its *abuses* may be prevented by restraint imposed by the other faculties; still its presence will operate on the mind. If, for instance, large Combativeness and Destructiveness be combined with a large development of the moral and intellectual organs, the whole life may be passed without the occurrence of any outrage; and it may be asked, What effect, in this case, do the former organs produce? We shall find the answer, by supposing all the other organs to remain large, while those are diminished in size, and tracing the effect of the change. The result would be an undue preponderance of moral and intellectual qualities, degenerating into effeminacy. Large Combativeness and Destructiveness give the elements of repulsion and aggression to such an extent as to permit the manifestation of manly enterprise and courage. Hence, in

¹ Vol. ii. p. 281.

the case supposed, these organs would be duly performing their functions and adding force to the character in the struggles of active life, when the superficial observer would imagine them to be entirely inoperative.

In like manner, if an organ be greatly deficient, its small size cannot be compensated for by other organs, however large. Suppose, for example, that, in an individual, Benevolence, Veneration, Love of Approbation, and Intellect, are all large, and Conscientiousness very deficient, it may be thought that the absence of Conscientiousness will be of small importance, as its influence will be compensated by that of the other faculties here named. This, however, will not be the case. The sentiment of *duty* originates from Conscientiousness (as explained in vol. i. p. 419), and the individual supposed would be benevolent, when Benevolence predominated; religious, when Veneration was paramountly active; obliging, when Love of Approbation glowed with fervour; but if all or any of these were, on any occasion, counteracted by the solicitations of the inferior propensities, he would not, if the organ of Conscientiousness were small, feel the *obligation of duty* enforcing the dictates of these other sentiments, and increasing their restraining power: he would be deficient in the sentiments of justice, duty, and incumbency: he would obey the impulses of the higher faculties *when inclined*; but if not inclined, he would not experience so strong a sense of demerit in neglecting their solicitation, as if the organ of Conscientiousness were large. Farther, the sentiments which we have supposed him to possess, would themselves, if not directed by Conscientiousness, be continually prone to run into abuse. Benevolence to one would tend to trench on justice due to another; devotion might occasionally be substituted for charity, or charity for devotion.

If we take the opposite case, and suppose that an individual possesses great Intellect and Conscientiousness, with deficient Benevolence, Veneration, and Love of Approbation; then, if the propensities were strong, his conduct might be the reverse of amiable, notwithstanding his large Conscientiousness. With this combination he would be actuated by

vigorous selfish feelings, which probably might overpower the single sentiment of duty, unaided by Benevolence, Veneration, and Love of Approbation ; and he might act wrong in opposition to the clear dictates of his own Conscientiousness. *Video meliora proboque, deteriora sequor*, would be his motto. If his propensities, on the other hand, were moderate, he would be strictly just ; he would give every one his due, but he would probably not be actively benevolent and pious. The faculty of Benevolence inspires with the feeling of charity, and Conscientiousness enforces its dictates ; but if (to suppose an extreme case) the feeling of charity were not inspired at all, Conscientiousness could not produce it, nor act upon it : It might impress the command, Do not injure another, because this is simply justice ; but it would not inspire with the desire to do him good, this being beyond its limits.

Occasionally, very unusual combinations of particular organs present themselves, the effects of which cannot, by ordinary sagacity, be divined ; and in such cases the phrenologist ought not to predicate any thing, but to ask for information. As, however, nature is constant, he may speak with confidence the next time he meets with a similar case. Before it was ascertained that Secretiveness and Imitation confer the talent for acting, I met with an instance of this combination, and predicated something from it, which was entirely erroneous. This occurrence was loudly and extensively proclaimed as subversive of Phrenology ; but to me it was a valuable lesson, and a discovery of some importance : Ever afterwards I found that particular talent accompany that combination.

RULE THIRD.—Where all the organs appear in nearly equal proportions to each other, the individual, if left to himself, will exhibit opposite phases of character, according as the animal propensities or moral sentiments predominate for the time. He will pass his life in alternate sinning and repenting. If external influence be brought to operate upon

him, his conduct will be greatly modified by it ; if placed, for instance, under strict discipline and moral restraint, these will cast the balance, for the time, in favour of the higher sentiments ; if exposed to the solicitation of profligate associates, the animal propensities will obtain triumphant sway. Maxwell, who was executed for housebreaking and theft, is an example of this combination. In his head the three or-

ders of organs are well developed, but the region of the moral sentiments, lying above the asterisks, is rather deficient, in proportion to the basilar and occipital regions, manifesting the propensities. While subjected to the discipline of the army, he preserved a fair reputation ; but when he fell into want, his pro-



pendencies assumed the ascendancy, he joined a company of thieves, and adopted their practices : he was tried in Edinburgh on 11th December 1820, found guilty, condemned, and afterwards executed. He mentioned to a friend of mine, who visited him while under sentence of death, that in youth and early manhood he had been respectable ; and he stated, that at these ages, he no more anticipated that he should die on the scaffold, than that he should be king of England. The following report of his conduct, when sentence of death was pronounced on him, appeared in the *Edinburgh Weekly Chronicle* of 13th December 1820.

“ The prisoner Maxwell, having obtained permission, addressed the Court and jury in substance as follows :—He confessed himself guilty of the crime for which he would soon have to answer before another tribunal, far more awful to him than that before which he was now placed. This Court, he said, could only inflict the sentence of death, whilst that could doom to eternal punishment : it was the only crime of the

description of which he had ever been guilty. He admitted their Lordships and the jury had acted properly and agreeably to the evidence brought before them; and he solemnly declared that the family of the Arniels, and the boy Batty, to whom he had foolishly told the story of the robbery, had spoken truth. It was true that he, along with four men, committed the robbery; but the other witnesses, the M'Williams and Dollin, had perjured themselves; and, so far from the other prisoners being concerned in the robbery, he had never so much as seen them till he saw them in Paisley jail. He stated these circumstances in order to guard the Court and jury against such evidence, and to strengthen, if possible, the humane recommendation of the jury in favour of Hamilton."—In this address there is a powerful manifestation of the moral feelings.

The characteristic quality of men possessing this combination is their liability to be swayed by external influences.

COMBINATIONS IN ACTIVITY.

WHERE several organs are pre-eminently large in the same individual, they have a natural tendency to combine in activity, and to prompt him to a line of conduct calculated to gratify them all. Where, however, all or the greater part of the organs are possessed in nearly equal proportions, important practical effects may be produced, by establishing Combinations in *activity* among particular organs, or groups of organs. For example, if Individuality, Eventuality, Comparison, Causality, Language, and Concentrativeness, be all large, they will naturally tend to act together, and the result of their combined activity will be a talent for public speaking, or literary composition. If Language be small, it will be extremely difficult to establish such a combination in activity, and this talent will not readily be evolved: But if two individuals possess this group of organs *of equal and of average size*, and if we train one of them to the Bar, and the other to a mechanical employment, the result will be an ac-

quired facility in writing and debate in the former, which will be wanting in the latter. In the one, these organs will have been trained to act together, and to co-operate in producing the effect described; whereas, in the other, a different combination in activity may have been established among the intellectual organs, giving pre-eminence to a different talent.

On the same principle, if a person having a favourable endowment of the organs of Propensity, Sentiment, and Intellect, were introduced for the first time into higher society than that to which he had been accustomed, he might lose for a moment the command of his faculties, and exhibit awkwardness and embarrassment. This would arise from irregular and inharmonious action in the different organs: Veneration, powerfully excited, would prompt him to manifest profound respect; Love of Approbation would inspire him with a desire to acquit himself to advantage; Cautiousness would produce alarm, lest he should fail in accomplishing this end; Self-Esteem would feel compromised by the consciousness of embarrassment stealing on the mind; and the Intellect, distracted by these conflicting emotions, might be unable to regulate the conduct with propriety. On the other hand, when familiarized with the situation, the sentiments would subside into a state of less energetic and more harmonious action; the intellect, assuming the supremacy, would regulate and direct the feelings; and then the individual might become a pattern of refined manners and the ornament of the circle, in which he had at first made an awkward *debut*.

It is in virtue of this principle that education produces its most important effects. If, for instance, we select two individuals, in each of whom all the organs are developed in an average degree, and educate one of them among persons of sordid and mercenary dispositions,—Acquisitiveness and Self-Esteem would in him be cultivated into a high degree of activity, and self-interest and personal aggrandizement would be viewed as the great objects of his life. If Love of Appro-

bation were trained into combined activity with these faculties, he would desire distinction in wealth or power: if Veneration were trained to act in concert with them, it would take the direction of admiring the rich and great; and, Conscientiousness not being predominantly vigorous, would only intimate that such pursuits were unworthy, without possessing the power by itself of overcoming or controlling the whole combination against it. If the other individual, possessing the same development, were trained in the society of moral and religious persons, in whose habitual conduct the practice of benevolence and justice towards men, and of reverence of God, was regarded as the leading objects of human existence,—the Love of Approbation, acting with this combination, would desire esteem for honourable and virtuous actions; and wealth would be viewed as the means of procuring gratification to these higher powers, but not as itself an object of paramount importance. And the practical conduct of the two individuals might be very different, in consequence of this difference of training, although their organs were equal in size.

The change of character exhibited by some individuals appears to be referable to new combinations in activity. It occurs generally in men in whom the organs of both the propensities and sentiments are large. In youth, the propensities take the lead, and intellect, acting in combination with them, produces sensual and immoral conduct. At a more advanced age, when the propensities have become less energetic, the individual may be placed in circumstances which powerfully excite his sentiments: The intellect will then act in combination with them, new interests will be felt, and higher views of duty and enjoyment arise: Life may thenceforward be regulated by reason and moral feeling, sensual gratifications may be shunned and resisted, and the individual may appear like a different being. Religious impressions are frequently the causes which give commencement to this reformation; and this is natural, because religion addresses the most powerful motives to the higher faculties. I

have observed, however, that individuals in whom the organs of the moral and intellectual faculties decidedly predominate, do not exhibit this change, because at no period of their lives have they been strikingly vicious ; neither do men in whom these organs are very deficient and the organs of the propensities very large, permanently undergo it; because their minds are like the stony ground mentioned in Scripture, on which good seed fell, but in which it could not take root owing to the want of soil.

The principle now under discussion is not inconsistent with the influence of size ; because it is only in individuals in whom the organs are nearly on an equality in point of size, that great effects can be produced by combinations in activity. In such cases the phrenologist, in estimating the effects of size, always inquires into the education bestowed.

The doctrine of combinations in activity explains several other mental phenomena of an interesting nature. In viewing the heads of the higher and lower classes of society in the aggregate, we do not perceive the animal organs preponderating in point of size in the latter, and those of the moral sentiments in the former, in any very palpable degree.¹ The high polish, therefore, which characterizes the upper ranks, is the result of sustained harmony in the action of the different faculties, and especially in those of the moral sentiments, induced by long cultivation :—The rudeness observable in some of the lower orders results from a predominating combination in

¹ In some instances, however, a difference is palpable. I have observed that the development of the moral and intellectual organs in the *pauper* children in Edinburgh is less in proportion to that of the organs of the propensities, than in the children of the upper ranks. The temperament of the former is also much more lymphatic, owing, in some degree, to their less nutritious diet, and the inferior mental stimulus afforded by their external circumstances. One of the teachers of St Cuthbert's pauper school, who had previously taught children of corresponding ages belonging to the higher classes, remarked, that he had found the differences in their mental capacities to correspond with those in their brains. The pauper children, in general, were the offspring of the weakest or most immoral portion of the community.

activity among the lower propensities ; while the awkwardness that frequently characterizes them, arises from the propensities, sentiments, and intellect, not being habituated to act together. If, however, an individual be very deficient in the higher organs, he will, in consequence of this defect, remain vulgar, although born and educated in the best society, and in spite of every effort to communicate refinement by training :—On the other hand, if a very favourable development of the organs of the higher sentiments and intellect, with a fine temperament, be possessed, the individual, in whatever rank he may move, will bear the stamp of nature's nobility.

Several other phenomena, which were complete enigmas to the older metaphysicians, are explained by this principle. Dr Adam Smith, in his *Theory of Moral Sentiments*, Chapter II, "On the influence of fortune upon the sentiments of mankind, with regard to the merit and demerit of actions," states the following case :—A person throws a large stone over a wall into the public street, without giving warning to those who may be passing, and without regarding where it may fall ; if it light upon a person's head, and knock out his brains, we would punish the offender pretty severely ; but if it fall upon the ground, and hurt nobody, we should be offended with the same measure of punishment, which, in the former event, we would reckon just, and yet the demerit in both cases is the same. Dr Smith gives no theory to account for these differences of moral determination. Phrenology explains them. If the stone fall upon an unhappy passenger, Benevolence in the spectator is outraged ;—if the sufferer had a wife and family, Philoprogenitiveness and Adhesiveness are offended. Self-Esteem and Cautiousness also are excited, by the idea that we might have shared the same fate : all these rouse Destructiveness, and the whole together loudly demand a smart infliction on the transgressor. In the other event, when the stone falls to the ground, and hurts nobody, the only faculties excited are Intellect and Conscientiousness, and probably Cautiousness, and these calmly consi-

der the motive of the offender, which probably was the love of mere muscular action, and award a slight punishment against him. The proper sentence, in such a case, would be one that would be approved of by Intellect and the moral sentiments acting in combination, uninfluenced by the lower propensities.

Dr Smith states another case. A friend solicits a place for another, and after using the greatest efforts is unsuccessful. Gratitude in this case is less warm than if the place had been obtained ; and yet the merit is the same. In the event of success, Self-Esteem, Acquisitiveness, and the other animal organs, are gratified, and excite Conscientiousness and Benevolence to gratitude. In the opposite result, the repressing influence of these faculties, *disappointed and grieved*, chills the glow of Benevolence and Conscientiousness, and feeble gratitude is felt.

When a person becomes judge in his own cause, his intellect may present to him the facts exactly as they happened, but these excite in his mind, not simply the sentiment of Conscientiousness, but also Self-Love, Acquisitiveness, and if he has been grievously injured, Destructiveness. Hence the decision of his own mind, on his own case, proceeds from Intellect, influenced and directed by all these lower feelings acting along with Conscientiousness. Present the same case to an impartial spectator, favourably constituted, and his decision will be the result of Conscientiousness and Intellect, unalloyed by the intermixture of the selfish emotions.

Justice, then, as explained in vol. i. p. 420, is the result of the combined activity of Intellect and Conscientiousness, informed, but not excited or misled, by all the other faculties. For example, if we are called on to judge of the conduct of a person accused,—in order to arrive at an absolutely just decision, the intellect must present to us a clear perception of his real motives and the tendency of his action ; if either of these be wanting, the sentiment of Conscientiousness will act not on a real, but on an imperfectly understood or imaginary case. In the next place, all the other faculties must be so

far active, as to present their legitimate claims to gratification and protection before the intellect and Conscientiousness. If an individual sue another for compensation for an affront, intellect and Conscientiousness in the judge, acting in combination with very deficient Self-Esteem and Love of Approbation, will not pronounce so just a decision as if both of the last-mentioned organs were normally developed; the judge will, in this case, be deficient in the faculties through the medium of which alone a due sense of the injury done to the plaintiff can be presented to the reflecting faculties. But, on the other hand, all *passionate* or excited activity of the animal propensities must be excluded; because, if offended Selfishness, or anger, or Acquisitiveness, or ambition, or Adhesiveness, mingle with Conscientiousness, the fountain is polluted, and the stream cannot be pure. It is an interesting fact, that the dictates of Conscientiousness, when perfectly enlightened, and not misled by the lower feelings, will be found always to harmonize with the enlightened dictates of Benevolence and Veneration, and *vice versa*; and hence, wherever any action or opinion is felt to stand in opposition to any of these sentiments, we may, without hesitation, suspect either that it is wrong, or that the intellect is not completely informed concerning its nature and legitimate consequences.

In party-politics, Adhesiveness, Love of Approbation, and Benevolence, not to mention Combativeness and Destructiveness, are extremely apt to enter into vivid activity, in surveying the conduct of an individual who has distinguished himself by zealous efforts upon our own side; and our judgment of his conduct will, in consequence, be the determination of Intellect and Conscientiousness, disturbed and led astray by these inferior feelings.

The doctrine of the primitive functions of the faculties, explained in the first part of this work, and of the Combinations now laid down, shews *why* Phrenology does not enable us to predict *actions*. Destructiveness, for example, is not a tendency to kill a man or a beast as a specific act, but

a mere general propensity, capable of leading to destruction as its ultimate result, but which may be manifested in a great variety of ways (many of them justifiable, others unjustifiable), according as it is directed by the faculties, which, in each particular instance, act along with it; thus, acting along with large Acquisitiveness, and in the absence of Conscientiousness, it may prompt to murder; while, acting along with large Conscientiousness and Benevolence, it may prove the orphan's help, and the widow's stay, by arresting the arm of the oppressor.

PRACTICAL APPLICATION OF THE DOCTRINE OF THE COMBINATIONS.¹

I CANNOT too earnestly repeat, that the principles now illustrated are practical and important. If any one require the assistance of a human being in affairs of moment, let him be assured that attention to the three elements—of temperament, development of mental organs, and education or training, will afford him more certain information regarding the inherent qualities of the subject and his practical capacities, than certificates of character and attainments, such as are commonly relied on. The size, however, to which this work has already extended, prevents me from doing more than making a few observations.

In one instance (as mentioned in vol. i. p. 423), I refused to hire a boy as a servant, because I found his head to belong to the inferior class, although he was introduced to me by a woman whose good conduct and discrimination I had long known, and who gave him an excellent character. That individual was at first greatly incensed at my refusing to engage the boy, but within a month she returned, and said

¹ I beg to refer the reader to an Essay by me "On the application of Phrenology to the purposes of the Guarantee Society for providing security for persons in situations of trust, where sureties are required, on payment of an annual premium," published in the *Phrenological Journal*, vol. xiv. p. 297; also to the same volume, p. 9.

that she had been grossly deceived herself, in regard to the boy, who was the son of a respectable neighbour of hers, but that she had since learned that the lad was a thief, and had been dismissed from his previous service for stealing. On another occasion, I hired a female servant, because her head belonged to the superior class, although a former mistress gave her a very indifferent character,—the result was equally in favour of Phrenology. She turned out an excellent servant, and remained with me for several years, until she was respectably married.¹

When a servant is to be hired, the points to be attended to are the following :

First, The temperament.—If this be lymphatic, there will be little spontaneous activity ; work will be a burden ; and exhaustion will soon follow from forced application. If it be purely nervous, there will be great vivacity, and strong natural tendency to activity ; but physical strength will not be present in a corresponding degree. Combinations of the sanguine and bilious, or bilious and nervous temperaments, are the best ; the bilious bestowing the quality of endurance, and the sanguine or nervous that of activity.

Second, The proportions of the different regions of the brain to each other.—If the base of the brain, the seat of the animal organs, be large, and the coronal region be shallow and narrow, the animal feelings will be strong, and the moral weak ; if both of these regions be large, and the anterior lobe of the brain small, the dispositions may be good, but the intellect will be weak. If all three be large, the moral and intellectual predominating, the best combination of qualities will be present.

Third, The proportions of particular organs to each other.

¹ A report of eleven cases observed in the Dublin Penitentiary, is published in the Phrenological Journal, No. xxi. p. 88, in which the dispositions were inferred from development of brain ; and similar cases are recorded in "Testimonials" presented by me in 1836, on becoming a candidate for the chair of Logic in the University of Edinburgh.

—If the lower region of the forehead be largely developed, and the upper deficient, the intellect will execute well whatever work is placed before it ; but it will be limited in its capacity of foreseeing what ought to be done, if not pointed out, and of arranging details in reference to the whole. If the upper part of the forehead be large, and the lower deficient, the power of abstract thinking (which a servant rarely requires, and is almost never called on to exercise) will be considerable, but quite uncultivated, and destitute of materials to act on ; while the talent for observing details, the love of order and arrangement, and, in short, the elements of practical usefulness, will be deficient. The best combination of the intellectual organs for a servant, is that which occurs when the lower region of the forehead is large, the middle region immediately above the nose, up to the line of the hair, is also large, and the upper lateral region full. The dispositions depend on the combinations of the moral and animal organs. If Acquisitiveness, Secretiveness, Love of Approbation, and Veneration, be large, and Conscientiousness deficient, the servant will be selfish and cunning ; but extremely plausible, deferential, and polite ; eye-service will be rendered abundantly, but conscientious discharge of duty will be wanting. If Benevolence, Conscientiousness, Firmness, Self-Esteem, and Combaticiveness, be large, in combination with Cautiousness, Secretiveness, Love of Approbation, and Veneration moderate, there may be great fidelity and honesty, with heat of temper, unbending stiffness of deportment, and, in short, an exterior manner, the reverse of the former, but internal dispositions and practical conduct in situations of trust far superior. The combinations also determine the fitness of the individual for particular employments ; a female with small Philoprogenitiveness should never be employed as a nursery-maid ; nor one deficient in Order and Ideality as a lady's maid. A man deficient in Conscientiousness is unfit to be a butler or steward. The varieties of combination are extremely numerous, and the effects of them can be learned only by experience.

Fourth, The education or training of the individual should be inquired into.—Phrenology shews only the natural qualities, but the direction which they have received must be ascertained by inquiry. No combination of organs will render an individual an expert cook, without having practised cookery, or an accomplished coachman, without having practically taken charge of horses, and learned to drive.

Fifth, The relation of the natural qualities of the master or mistress to those of the servant is of much importance.—If a mistress with a small brain, having Conscientiousness and Benevolence moderate, and Self-Esteem and Combative-ness large, should hire a servant possessed of a large, active, and well-proportioned brain, the latter will instinctively feel that nature has made her the superior, although fortune has reversed their relative positions. The mistress will feel this too, but will maintain her authority by imperiousness, cap-itiousness, or violence. In this condition, the best dispositions of the servant may be outraged, and conduct produced of a discreditable nature, when contemplated by itself, apart from the provocation. A servant with a small brain, but favourable combination, would prove a treasure to a mistress possessed of similar qualities ; whereas she would be felt to be too feeble and inefficient in her whole manner and mode of acting, by a lady whose brain was very large, very favour-ably combined, and very active. This principle explains why the same individual may be found to be an excellent servant in one family, and an unsuitable one in another.

Sixth, The qualities of servants, in reference to each other, ought to be considered.—Two individuals, possessing large and active brains, great Self-Esteem, Love of Approbation, and Combativeness, may, if they have large Benevolence, Veneration, and Conscientiousness, prove excellent servants to their employers, whom they regard as legitimate objects of veneration and conscientiousness ; but may be very in-different companions to each other. Each will desire defer-ence and respect from the other, which neither will yield ; and in all probability, they will quarrel and manifest only

the propensities in their intercourse with each other. Instruction in their own nature, and in the proper direction of their feelings, would, in many instances, remedy this evil. But while ignorance continues, it is advisable to rely chiefly on natural qualities: if, for example, one servant has Self-Esteem large, a companion should be selected in whom this organ is moderate; and the same with Combativeness. When this is neglected, the natural language of Self-Esteem or Combativeness in the one involuntarily excites the same feeling in the other, and harmony is nearly impossible: whereas, if one has Self-Esteem large, and the other has it small, the natural expression of the former is not painful to the latter; on the contrary, the absence of pretension, which attends a small Self-Esteem, renders the latter agreeable to the former, and a sincere reciprocal regard may arise between them.

It will be obvious to every reflecting person, that the circumstance of a servant being rejected by a phrenologist, is no proof of the individual being essentially bad; it shews only, that, in one or other of the six points before mentioned, the individual did not suit the particular phrenologist, and no more. The servant may be admirably qualified for a different employer.

Similar remarks apply to the selection of clerks, partners in business, and all persons needed to fill confidential situations. I have been told that it is extremely difficult to prevent peculation in the Post-Office, and other departments of public and private business, in which extensive trust is necessarily confided to the individuals employed. If only persons in whom the moral and intellectual organs decidedly predominate were chosen to fill such situations, the evil would disappear.

In the United States of America, the extent of peculation by public officers, in the employment of government, of banking companies, and similar institutions, is very great. If those who appoint such officers, would be guided by Phre-

nology, a remedy for the evil would be found. I have never known a man in whom the moral and intellectual organs were large, and Acquisitiveness and Secretiveness moderate, guilty of fraud. In choosing representatives in the legislative bodies also, Phrenology will enable the electors to discriminate between honest and able patriots and empty declaimers.

These observations are offered as hints merely, and not as complete practical directions. The elements which compose human character are so numerous, their combinations so intricate, and so little has been done in the practical application of the science, in the manner now recommended, that it is impossible to be too modest either in giving directions or in promising results. Experience is the great teacher, and my sole object is to induce phrenologists to seek experience by practice. I am aware that many of my readers will be conscious that much greater attainments than they at present possess would be requisite, to enable them to act on the principles unfolded even in this brief statement; and hence, many of them may consider the remarks as altogether unnecessary; but several answers may be made to this objection. *First*, There are phrenologists who have practised on the rules here recommended, and experienced advantages from it; and what has been done successfully and with benefit by some, may be accomplished by others. *Secondly*, Science is valueless unless it be practical; practical sciences can be advanced only by experience; and experience cannot be gained without a beginning. And, *thirdly*, Even those persons who are conscious of incapacity to practise these rules, may perceive the advantage of acting on them if they could; and may feel that, until some mode of guiding the judgment in the selection of individuals who are to be placed in confidential situations, shall be resorted to, which shall bring into view the points before treated of, uncertainty, disappointment, and annoyance, must afflict both the employers and the employed. And, *finally*, There is no system of mental philosophy in existence which professes to afford even the least aid in ascer-

taining the natural capacities and dispositions of individuals prior to experience of their actions, except Phrenology.

This application of Phrenology has suggested the question, Are individuals with "ill-shaped heads" to become "outcasts from society?" This is precisely the evil which, under the actual system of criminal legislation, exists, and which the phrenologists are labouring to remove. An unfavourably developed brain, and good natural dispositions, are two conditions which do not co-exist in nature. Phrenologists, therefore, by establishing the fact, that an imperfectly formed brain renders an individual naturally prone to vice, will afford an inducement to society to treat men so constituted as *moral patients*, and to use more effectual means for restraining their propensities than any that are at present adopted. This, in my opinion, would be preferable to the existing practice, which leaves individuals with the worst natural dispositions at liberty, in the most unfavourable circumstances, to follow their instinctive tendencies, and only punishes them after having committed crimes. At present these beings are surrounded by want, misery, and the means of intoxication. They transgress the criminal law, are confined for a time in jails and bridewells, calculated to excite their propensities, and to afford little cultivation to their moral powers; and they are afterwards ejected into the immoral atmosphere from which they were taken; a mode of treatment which could not exist, if Phrenology were believed and understood.

It has been further asked by way of objection, "Does Mr Combe deny, that, in the case he mentions, the boy whom he rejected might have had a good character, notwithstanding the indications of his original propensities? If he denies this, he denies a proposition which he himself has always stated, and from which he derives the practical value of Phrenology, namely, that the original propensities can be corrected, and even eradicated, by education, and other means."

Answer : I have not stated that the "original propensities can be *eradicated* by education and other means." If so, Phrenology would necessarily be a dream. What I have said

is this,—that all the faculties may be *directed* to proper objects, and, when so directed, their action will become good. But to guide strong animal propensities to virtue, there must be a directing power. If the individual possesses vigorous moral and intellectual organs, he will be a law and a guide unto himself. If, however, these be deficient, which was the case in the boy alluded to, then I certainly maintain that strong animal feelings will *not guide themselves* to virtue. In this case, the directing power must be supplied *from without*. The case of E. S., mentioned in vol. i. p. 271, is exactly in point, and illustrates the positions here maintained. If the boy had been placed from infancy in an asylum, from which temptation to vice was excluded, and in which the highest moral and intellectual treatment was administered, he might have had a good character, notwithstanding the form of his brain ; because, *so situated*, he *could not* have offended. But I was informed that he had been brought up in the ordinary circumstances of the labouring classes in this country, and extensive observation had convinced me, that that condition does not withdraw temptation from the propensities, and does not supply moral and intellectual stimulus to the higher faculties, sufficient to direct a mind constituted like his, to morality. I therefore inferred, that his good character was false ; which it actually proved to be. At present, society is greatly deficient in institutions in which the moral influence of higher minds can be brought habitually to bear on inferior minds, in the absence of external temptation.

I have endeavoured to suggest an improved method of Prison discipline, in a Letter addressed to Mr Mittermair, Professor of Criminal Jurisprudence in the University of Heidelberg, published in the *Phren. Journ.* vol. xvi. p. 6.

In consequence of the lamentable ignorance which too generally abounds of the nature of *individuals*, the mental deficiencies in which the tendency to crime originates are not understood, and still less is the great power of moral influence which the best order of minds could wield over the inferior duly appreciated. This influence, however, cannot

exert itself efficiently, unless external temptation to evil be withdrawn, which cannot be the case without institutions formed for the purpose. Phrenology will hasten the day when these shall exist. Society is in possession, from history and observation, of a pretty accurate knowledge of *human nature in general*; but this knowledge is *too general* to be practically useful. When an individual is presented to them, they cannot tell, previous to experience, whether he is naturally a Caligula or a Washington. Phrenology not only gives a scientific basis and form to the *general knowledge* of mankind already existing, but renders it available in *particular* instances; it unfolds the natural qualities of *individual* men, and enables us to judge how far they will be *inclined* to and *capable* of following one course of action or another. I consider it, therefore, neither unjust nor inhumane to decline taking into my service individuals whom I know to be unfitted, by their mental qualities, for the duties which they would be called on to perform. In short, if the members of society, instead of giving false characters of profligate individuals (through Benevolence acting without Conscientiousness), and, in consequence, exposing each other to loss of property and life by criminal outrages, would treat as moral patients those persons whose mental deficiencies render them incapable of guiding themselves to virtue, they would benefit both themselves and the vicious.¹

¹ The chief object of this work is to unfold the fundamental facts and doctrines of Phrenology, as the science of the human mind. Its applications are treated of in other works. Besides those quoted in the work itself, the following may be consulted with advantage.

A Sketch of the Natural Laws of Man. 12mo, p. 220. By Dr Spurzheim.

Elementary Principles of Education. By Dr Spurzheim.

The Constitution of Man considered in relation to External Objects. By the author of the present work. The People's Edition; price 1s. 6d. The Sixth Edition, 12mo, price 4s.

Moral Philosophy, or the duties of man considered in his individual, domestic, and social capacities. By George Combe. Second Edition, in 12mo. p. 442, price 7s. 6d.

Phrenology in connection with Physiognomy. By Dr Spurzheim.

Observations on Mental Derangement; being an application of the prin-

ON THE COINCIDENCE BETWEEN THE NATURAL TALENTS AND
DISPOSITIONS OF NATIONS, AND THE DEVELOPMENT OF
THEIR BRAINS.

THE mental character of an individual, at any given time, is the result of his natural endowment of faculties, modified by the circumstances in which he has been placed. The first element, or natural constitution, is admitted, by most thinking men, to form the basis of, and prescribe the limits to, the operation of the second. If a child be by nature extremely combative, and very little cautious, highly prone to covetousness, and very insensible to justice, a reflecting guardian will expect him to develop a character different from that which he would exhibit, if his natural dispositions were exactly the reverse; he will not expect education to change his nature, although it may improve it within certain limits.

A nation is composed of individuals (who preserve their individuality), and what is true of each one must hold good of the aggregate mass;—nevertheless, the fashionable doctrine is, that national character depends altogether on external circumstances; and that the *native* stock of animal, moral, and intellectual powers on which these operate, is the same in New Holland, in England, in Hindostan, and in France. Dugald Stewart informs us, “That the capacities

ciples of Phrenology to the Elucidation of the Causes, Symptoms, Nature, and Treatment of Insanity. By Andrew Combe, M. D. Small 8vo. pp. 392.

The Philosophy of Education, with its practical application to a system and plan of Popular Education as a National Object. By James Simpson, Esq. Advocate.

Popular Education; its objects and principles elucidated. By George Combe, 8vo. price 1s. 6d.

Selections from the Phrenological Journal, consisting of the most interesting articles in the first twenty Numbers. 12mo.

Phrenology in the Family. By the Reverend Joseph A. Warne; reprinted from the American Edition, 8vo. price 1s.

An Essay on some subjects connected with Taste. By Sir G. S. Mackenzie, Bart.

of the human mind have been in all ages the same ; and that the diversity of phenomena exhibited by our species is the result merely of the different circumstances in which men are placed." "This," says he, "has long been received as an uncontrovertible logical maxim ; or rather, such is the influence of early instruction, that we are apt to regard it as one of the most obvious suggestions of common sense. And yet, till about the time of Montesquieu, it was by no means so generally recognised by the learned as to have a sensible influence on the fashionable tone of thinking over Europe."¹

There is some ambiguity in this passage.—The proposition, that "the capacities of the human mind have been *in all AGES* the same," does not necessarily imply that they have been alike *in all NATIONS*. The Hindoo mind may have been the same in the year 100 as in the year 1800, and so may the English and all other national minds ; but it does not follow that either in the year 100 or 1800 the English and Hindoo minds were constituted by nature equal in all their capacities ; and yet this is what I understand Mr Stewart to mean : for he adds, "that the diversity of phenomena exhibited by our *species* is the result *merely* of the different circumstances in which men are placed ;" assuming, in this proposition, that the men of every nation are equally gifted in mental power. There is reason to question this doctrine, and to view it as not merely speculatively erroneous, but as giving rise to much hurtful practice.

When we regard the different quarters of the globe, we are struck with the extreme dissimilarity in the attainments of the varieties of men who inhabit them. If we glance over the history of Europe, Asia, Africa, and America, we shall find distinct and permanent features of character, which strongly indicate natural differences in their mental constitutions. The inhabitants of Europe, belonging to the Caucasian variety of mankind, have manifested, in all ages, a strong tendency towards moral and intellectual improvement. As far back as history reaches, we find society instituted,

¹ Dissertation, p. 53.

arts practised, and literature taking root, not only in intervals of tranquillity, but amidst the alarms of war. Before the foundation of Rome, the Etruscans had established civilization and the arts in Italy. Under the Greek and Roman empires, philosophy, literature, and the fine arts, were sedulously and successfully cultivated; and that portion of the people whose wealth enabled them to pay for education, attained a high degree of intelligence and refinement. By the irruption of the northern hordes, these countries were subsequently involved in a chaos of ignorance;—but again the sun of science rose, the clouds of Gothic darkness were dispelled, and Europe took the lead of the world in science, morals, and philosophy. In the inhabitants of this portion of the globe, there appears an elasticity of mind incapable of being permanently repressed. When borne down for a time by external violence, their mental energies seem to have gathered strength under the restraint, and at length to have burst their fetters, and overcome every obstacle opposed to their expansion.

These remarks apply more peculiarly to the Teutonic race in Europe. Different degrees of mental aptitude have been displayed by other tribes inhabiting that region of the globe. In France, Ireland, and Scotland, the Celtic race is still numerous, but it remains far behind the Teutonic, and also in the rear of the mixed race of Teutonic and Celtic blood, in its attainments in arts, science, philosophy, and civilization.

When, on the other hand, we turn our attention to Asia, we perceive manners and institutions, which belong to a period too remote to be ascertained, yet far inferior to the European. The people of Asia early arrived at a point comparatively low in the scale of improvement, beyond which they have never passed.

The history of Africa, so far as Africa can be said to have a history, presents similar phenomena. The annals of the races who have inhabited that Continent, with few exceptions, exhibit one unbroken scene of moral and intellectual

desolation ; and in a quarter of the globe embracing the greatest varieties of soil and climate, no nation is at this day to be found whose institutions indicate even moderate civilization.¹

Some of the African tribes, however, have attained to the condition of barbarians. They have built cities, and established, although in a rude form, manufactures, agriculture, commerce, government, and laws.

The aspect of America is still more deplorable than that of Africa. Surrounded for centuries by European knowledge, enterprise, and energy, and incited to improvement by the example of European institutions, many of the natives of that continent remain, at the present time, the same miserable, wandering, houseless, and lawless savages as their ancestors were, when Columbus first set foot upon their soil. Partial exceptions to this description may be found in some of the southern districts of North America ;² but the numbers who have adopted the modes of civilized life are so small, and the progress made by them so limited, that, speaking of the race, we do not exaggerate in saying, that they remain to the present hour enveloped in all their primitive barbarity, and that they have profited little by the introduction into the new continent of arts, sciences, and philosophy. The same observations have occurred to a writer in the Edin-

¹ Since the observation in the text was written, accounts have appeared of a people discovered by Major Clapperton in the interior of Africa in a state of comparative civilization. It is said, that, although they are jet black, they are not Negroes, and it is conjectured that they are the descendants of the Numidians of ancient history. If the representations of their attainments be correct, I anticipate in them a brain developed like the European.

² I beg to refer the reader to the admirable work on the *Crania Americana*, by Dr Morton of Philadelphia, for much accurate and interesting information on the subject of the mental and phrenological characteristics of the native American tribes. I studied his collection of skulls, and perceived considerable variety in the size and forms of them. The brain was most favourably developed in those that had made the nearest approaches to the civilization of the Anglo-Americans.

burgh Review. The following remarks, on the native American character, appeared in that work in an article on "Howison's Upper Canada," June 1822 :—"From all that we learn," says the Reviewer, "of the state of the Aborigines of this great continent from this volume, and from every other source of information, it is evident that they are making no advances towards civilization. It is certainly a striking and mysterious fact, that a race of men should thus have continued for ages stationary in a state of the rudest barbarism. That tendency to improvement, a principle that has been thought more than perhaps any other to distinguish man from the lower animals, would seem to be totally wanting in them. Generation after generation passes away, and no traces of advancement distinguish the last from the first. The mighty wilderness they inhabit may be traversed from end to end, and hardly a vestige be discovered that marks the hand of man. It might naturally have been expected, that, in the course of ages, some superior genius would have arisen among them to inspire his countrymen with a desire to cultivate the arts of peace, and establish some durable civil institution; or that, at least, during the long period since the Europeans have been settled amongst them, and taught them, by such striking examples, the benefits of industry and social order, they would have been tempted to endeavour to participate in blessings thus providentially brought within their reach. But all has been unavailing; and it now seems certain that the North American Indians, like the bears and wolves, are destined to flee at the approach of civilized man, and to fall before his renovating hand, and disappear from the face of the earth along with those ancient forests which alone afford them sustenance and shelter."

I have seen several settlements of native Indians, who still live in the near neighbourhood of civilization, in the United States of North America, and found them degraded, and not improved by their contact with the white race.

The theory usually advanced to account for these differ-

ences of national character is, that they are produced by diversities of soil and climate. But, although these may reasonably be supposed to exert a certain influence, they are altogether inadequate to explain the whole phenomena. We should ever bear in mind, that Nature is constant in her operations, and that the same causes invariably produce the same effects. Hence, when we find exceptions in results, without being able to assign differences in causes, we may rest assured that we have not found the true or the only cause, and our efforts should be directed to obtaining new light, and not employed in maintaining the sufficiency of that which we possess.

If we survey a map of the world, we shall find nations whose soil is fertile and climate temperate, in a lower degree of improvement than others who are less favoured. In Van Diemen's Land and New South Wales a few natives have existed in the most wretched poverty, ignorance, and degradation, in a country which enriches Europeans as fast as they subject it to cultivation. In America, too, Europeans and native Indians have lived for centuries under the influence of the same physical causes; the former have kept pace in their advances with their brethren in the Old Continent, while the latter, as we have seen, remain stationary in savage ignorance and indolence.

Such differences are not confined to the great continents alone; but different tribes in the same hemisphere seem to possess different degrees of native mind, and these remain unchanged through numerous ages. Tacitus describes the Gauls as gay, volatile, and precipitate, prone to rush to action, but without the power of sustaining adversity and the tug of strife; and this is the character of the Celtic portion of the French nation down to the present day. He represents the Britons as cool, considerate, and sedate, possessed of intellectual talent, and says that he prefers their native aptitude to the livelier manners of the Gauls. The same mental qualities characterize the English of the nineteenth century, and they and the French may still be contrasted in

similar terms. Tacitus describes the Germans, allowing for their state of civilization, as a brave, prudent, self-denying, and virtuous people, possessed of great force of character ; and the same features distinguish them still. The native Irishman, in manners, dispositions, and capacities, is a being widely different from the lowland Scotchman ; and if we trace the two nations to the remotest antiquity, the same characteristic differences are found.

These differences between nations living under similar climates, are commonly attributed to the religious and political institutions of the several countries. Presbytery and parish schools, for example, are supposed to have rendered the Scotchman habitually attentive to his own interest, but cautious, thoughtful, and honest ; while Popery and Catholic priests have made the Irishman free and generous withal, but precipitate and unreflecting,—ready in the gust of passion to sacrifice his friend, and in the glow of friendship to immolate himself. It is forgotten, that there were ages in which Popery and priests had equal ascendancy in all the British isles, and that then the Englishman, Irishman, and Scotchman, were as specifically different as at present : Besides, the more correct, as well as the more profound view, is to regard religious and political institutions, when not forced upon a people by external conquest, as the spontaneous growth of their natural propensities, sentiments, and intellectual faculties. Hierarchies and constitutions do not spring from the ground, but from the minds of men : If we suppose one nation to be gifted with much Wonder and Veneration, and little Conscientiousness, Reflection, and Self-Esteem ; and another to possess an endowment exactly the reverse ; it is obvious that the first would be naturally prone to superstition in religion, and servility in the state ; while the second would, by native instinct, resist all attempts to make them reverence things unholy, and tend constantly towards political institutions, fitted to afford to each individual the gratification of his Self-Esteem in independence, and his

Conscientiousness in equality before the law. Those who contend that institutions come first, and that character follows as their effect, are bound to assign a cause for the institutions themselves. If they do not spring from the native mind, and are not forced on the people by conquest, it is difficult to see whence they can originate.

The phrenologist is not satisfied with these common theories of national character ; he has observed that a particular form of brain is the invariable concomitant of particular dispositions and talents, and that this fact holds good in the case of nations as well as of individuals. If this view be correct, a knowledge of the size of the brain and of its different parts, in the varieties of the human race, will be the key to a correct appreciation of the differences in the natural mental endowments, on which external circumstances act only as modifying influences. Dr Gall¹ has treated briefly of this subject. After noticing the effects of climate on the human faculties, he adds the following caution : “ It is generally believed that it is sufficient to have a few national crania before one’s eyes to be in a condition to draw inductions from them. This would be the case, certainly, if the moral and intellectual character of all the individuals composing a nation were the same ; but, according to the observations of Dr Spurzheim and myself, great differences exist between individuals belonging even to nations having a very determinate character. Dr Spurzheim saw in London twelve Chinese, and he found them to differ as much from each other as Europeans. Resemblance between the individuals held good only in the countenance, and particularly in the position of the eyes. M. Diard gave me two crania found at Coulpi, on the banks of the Ganges. If I except the organs of Philoprogenitiveness and Acquisitiveness, which are very large, all the others presented striking differences. We see the same differences among Negroes, although they always resemble each other in the mouth and nose, especially when they are natives of

¹ *Sur les Fonctions du Cerveau*, tome v. p. 412.

the same country. Dr Spurzheim saw in London, in the establishment for mutual instruction, three Negroes, one of whom was a young man of eighteen years of age, endowed with extraordinary talents and an agreeable countenance. I have seen several Negroes, of both sexes, whose features were altogether agreeable. I observe the same forms among individuals of different nations; so much so that it would be impossible to distinguish by these alone, whether an individual was a Frenchman, German, Italian, Spaniard, or an Englishman. It is for this reason that we find individuals in all nations who have the same moral and intellectual character. Those, therefore, judge precipitately, who believe that they are able to decipher the general character of a nation from a small number of skulls. In order to discover this general character, it is necessary to study a great number of individuals,—entire regiments,—the whole nation so far as possible. With such facilities, it will be easy for the organologist to discover in the structure of the head, the material cause of the peculiar character of the people."

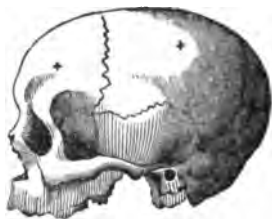
The Phrenological Society of Edinburgh possesses a large collection of national crania, and while I readily admit the importance of Dr Gall's caution, it is proper to remark that, if one may judge from this collection, he overstates the extent of the differences between individual skulls belonging to the same people. The variety of tribes of mankind is very great, and the political do not always coincide with the natural divisions of the races. A collection of Russian crania, for instance, might contain almost every variety of the human species, except Negroes; they would all be Russians politically; but in their natural characteristics they would belong to the Celtic, Teutonic, Mongolian, and Circassian races, and their varieties. Distinct and well-marked tribes alone should be considered as nations when we are considering the peculiarities of national skulls; but if this be done, it appears to me that the study is possible, because a general type pervades the great majority of each tribe. It is true that several

individual skulls closely resembling each other, may be selected from a great number belonging to different nations ;— but this is an exception to the general rule. A common form in the entire skull, and a common proportion in the different organs, pervades the forty or fifty Hindoo skulls in the Society's Museum, acquired at different times and from different parts of Hindostan ; to which the head of Rammo-hun Roy is the sole marked exception. The head of this celebrated man, both in size and combination, resembles the skulls of the mixed race of Celts and Germans in Europe ; but he was a phenomenon in his own country. There are varieties of development among the other Hindoo skulls, corresponding to the differences in individual character ; but these sink into insignificance when the Hindoo skull, in its general form, is compared with the Negro or Charib in their general types. The same remarks apply to the Esquimaux, the Swiss, the Peruvian, and other national skulls in the Society's possession ; a peculiar character pervades the skulls of each nation which strikingly distinguishes them from others. It is not extraordinary that this should be the case, considering that the nation consists of individuals, whose general characteristics are closely analogous.

I proceed, therefore, to offer a few remarks on several of the national *crania* in the Phrenological Society's collection, more to stimulate others to enter into this field of investigation, than to state well ascertained results, and, moreover, I request the reader, in considering the following remarks, always to give due weight to Dr Gall's caution.

In the Phrenological Transactions, an account is given of the Phrenology of Hindostan, by Dr G. M. Paterson. The HINDOOS are remarkable for want of force of character, so much so, that a handful of Europeans overcomes in combat, and holds in permanent subjection thousands, nay millions, of that people. Power of mental manifestation bears a proportion to the size of the cerebral organs, and the Hindoo head is small, and the European large, in relation to each

other in conformity with the different mental characters.¹ Farther, the Hindoo is distinguished by a great respect for animal life, and absence of cruelty in his dispositions; while, at the same time, he is destitute of fire, and of that vigour of mind which overcomes obstacles, and gives force to command. The European is very different; he lives to a great extent upon animal food, is fierce in his anger, and is characterized by great combative and destructive energy. The Hindoo skull indicates a deficiency in the organs of Combativeness and Destructiveness; while, in the European, these parts are more amply developed. The Hindoo is cunning, timid, and proud; and in him Secretiveness, Cautiousness, and Self-Esteem, are large in proportion to the organs last mentioned. In intellect, the Hindoo is more prone to analogical than direct reasoning, is fond of metaphors and comparisons, and little given to discriminating differences; and the organ of Comparison is larger in his head than those of Causality. Dr Paterson states, that these facts are drawn from upwards of three thousand observations; and they are illustrated by a collection of Hindoo skulls presented by him to the Phrenological Society. These skulls,² twelve in number, and a large addition of skulls of the same nation, acquired by the Society from other quarters, have long been exhibited to public inspection. Mr Montgomery has called in question the justness of the character assigned to the Hindoos, but his objections have been ably answered by Dr Corden Thompson in the Phren. Journ. vol. vi. p. 244. I still regard the statements made by Dr Paterson to be correct.



¹ At the end of this section a table of measurements is given of several of the skulls mentioned in it.

² I strongly recommend to the reader to inspect the casts of national skulls here referred to. The study of them will make a deeper impression than any description.

The Society's collection contains other specimens of national development of brain equally interesting. The CARIB skulls present a striking appearance. They are much *larger* than the Hindoo

CARIB.



heads, and, in conformity with the principle, that size indicates power, this tribe is the most remarkable, among all the native Americans, for force of character. The Europeans have in vain attempted to subdue them; they have hunted them down like wild beasts, and nearly extirpated them, but failed in every attempt to enslave them in a mass, as the Portuguese and Spaniards did the natives of Mexico and Brazil. Farther, the Carib brain is prodigiously developed in the regions of Combativeness and Destructiveness, in which the Hindoo head is deficient; and the former race is as ferocious as the latter is mild and inoffensive. In the reflecting organs, the Carib is extremely deficient; and he is described as rushing with unbridled eagerness on present gratification, blind to every consequence, and incapable of tracing the shortest links in the chain of causation. The organs of the animal propensities greatly preponderate over those of the intellectual faculties: If the region above the organs of Cautiousness and Causality be measured, the height will be found to be small, compared with that in Europeans,—an indication that the organs of the moral sentiments also are deficient in size. The Society possesses casts of five skulls of Caribs, all of which, with individual differences, present a general type characteristic of the whole. In St Thomas's Hospital, London, I have seen the original of one of these casts:—the whole were procured by Dr Spurzheim from authentic skulls, and their genuineness may be relied on. In the Anatomical Museum of the Andersonian University in Glasgow, I have seen another Carib skull, corresponding exactly with those now mentioned.

Mr Sedgwick, Secretary to the Phrenological Society of London, communicated an interesting Essay to the *Phrenological Journal* (vol. vi. p. 377.) on "the artificial compression of the infant head, by barbarous nations," in which he clearly establishes that the Carib and other Indian tribes flatten the forehead of their children by compression, some of them by means of a small bag of sand, others by confinement of the infant head between two small pieces of wood, one placed before, and the other behind, both being firmly bound together; and others, on the north-west coast, by a board in the cradle brought over the forehead, and tied firmly down upon the head of the infant. The child is seldom taken from the cradle, and the compression is continued till it is able to walk. The point is still unascertained whether, in these cases, the organs affected by compression are merely displaced, or are impeded in their growth. The coincidence between the deficient development, and deficient manifestations, seems to indicate the latter to be the case.

The NEW HOLLAND skull indicates a great deficiency in the regions of the moral and intellectual organs. The organs of Number, Constructiveness, Reflection, and Ideality, are particularly small, while those of the animal propensities are fully developed. The Society possesses casts of two skulls of natives of New Holland, and Sir George S. Mackenzie has presented to it the actual skulls of a chief and a female of that country; the whole of which correspond, in a striking manner, in their general features.



If these skulls were put into the hands of a phrenologist to state the dispositions which they indicate, he would say that there should be considerable energy and courage, but extreme selfishness, fierceness, and stubbornness, combined with intellectual incapacity. Every organ necessary for the constructive arts is defective, while Ideality is so small, that

sentiments of refinement or elegance will scarcely be at all experienced. The most unaccustomed eye will perceive how far this skull and that of the Carib fall short of the European in the organs of Reflection, Ideality, and Constructiveness.

The following account of the actual condition of the natives of New Holland, is given in Smellie's *Philosophy of Natural History*:—"It would appear that they pull out the two fore-teeth of the upper jaw; for in neither sex, nor at any particular period of life, are these teeth to be seen.¹ They are beardless: their visage is long, without exhibiting a single agreeable feature; their hair is black, short, and crisped; and their skin is equally black as that of the Guinea Negroes. Their only clothing consists of a piece of the bark of a tree tied round their waist, with a handful of long herbs placed in the middle. *They erect no houses*; and, without any covering, they sleep on the ground. Men, women, and children, associate promiscuously to the number of 20 or 30. A small fish which they catch in reservoirs made with stones in arms of the sea, constitutes their chief nourishment; and with bread, and every species of grain, they are totally unacquainted."² I select this description on account of its brevity.—Smellie refers to Dampier as his authority.

Captain Cook was the first who explored the eastern coast of New Holland, of the natives of which he gives the following account: "They appeared to have no fixed habitations; for we saw nothing like a town or a village in the whole country. Their houses, if houses they may be called, seem to be formed with less art and industry than any we had seen, except the wretched hovels at Terra del Fuego, and in some respects they are inferior even to them. At Botany Bay, where they were best, they were just high enough for a man to sit upright in, but not large enough for him to extend himself in his whole length in any direction: they are

¹ These teeth are wanting in the chief's skull presented by Sir George S. Mackenzie to the Society.

² Vol. ii. p. 84.

built with pliable rods, about as thick as a man's finger, in the form of an oven, by sticking the two ends into the ground, and then covering them with palm-leaves and broad pieces of bark : the door is nothing but a large hole at one end, opposite to which the fire is made. Under these houses or sheds they sleep, coiled up with their heels to their head ; and in this position one of them will hold three or four persons."—"The only furniture belonging to these houses that fell under our observation, is a kind of oblong vessel made of bark," which was supposed to be used as a bucket for carrying water. Captain Cook adds, that "both sexes go stark naked;" and that he saw neither nets nor vessels in which water might be boiled. "The canoes of New Holland," he continues, "are as mean and rude as the houses," being, on the southern parts of the coast, "nothing more than a piece of bark, about twelve feet long, tied together at the ends, and kept open in the middle by small bows of wood;" and in the northern parts, merely the hollow trunk of a tree. These were the inhabitants of a different part of New Holland from that visited by Dampier. Their want of curiosity also was very remarkable, and forms a good contrast with the wonder with which some American tribes regarded the Spaniards and their ships on their first appearance in the new world. Captain Cook relates, that of about twenty natives who were seen on the shore, not far from Botany Bay, "not one was observed to stop and look towards us, but they trudged along, to all appearance without the least emotion of curiosity or surprise, though it is impossible they should not have seen the ship by a casual glance, as they walked along the shore ; and though she must, with respect to every other object they had yet seen, have been little less stupendous and unaccountable than a floating mountain, with all its woods, would have been to us."¹

These observations are confirmed by the Rev. Dr Lang in the following terms :² "Throughout the whole period of his

¹ See Cook's First Voyage, b. ii. ch. ii. and vi.

² An Historical and Statistical Account of New South Wales, both as

government," says Dr Lang, "Captain Philip endeavoured, with a zeal and perseverance which evinced the correctness of his judgment and the benevolence of his disposition, to conciliate the aborigines of the territory. But all the efforts of the Governor, as well as of other humane individuals in the colony, to effect the permanent civilization of that miserable people, proved utterly abortive. There was no difficulty in inducing individuals of their number, particularly the young, to reside for a time in European families, and to acquire the habits and learn the arts of civilization; but sooner or later they uniformly rejoined the other children of the forest, and resumed the habits of savage life. Bennelong, an intelligent native of some consequence in his tribe, had been domesticated in the Governor's family, and could acquit himself at table with the utmost propriety. On returning to England, Captain Philip carried him along with him, and introduced him as an interesting specimen of the aborigines of the colony, in many of the highest circles in the mother country. On returning, however, to his native land, Bennelong speedily divested himself of his European attire, and rejoined his tribe as a naked savage, apparently unimproved in the least degree by his converse with civilized man.

"In the year 1788, the number of the aborigines inhabiting the shores of Port Jackson was very considerable. A disease, however, somewhat resembling the small-pox, which appears to have prevailed among them to a great extent, shortly after the establishment of the colony, thinned their ranks very sensibly, and left only a comparatively small number to inherit the invaded patrimony of their forefathers. Numerous dead bodies were, from time to time, found by the colonists in all directions in the vicinity of the harbour, in the very attitude in which the wretched individuals had died, when abandoned by their tribe from fear of the pestilence.

a penal settlement and as a British Colony. By John Dunmore Lang, D.D. Senior Minister of the Scots Church, and Principal of the Australian College, Sidney, New South Wales. London: Cochrane and Mac-Crone. 1834. Vol. i. p. 36-39.

Besides, the natives could not be supposed so utterly devoid of understanding as not to perceive that the occupation of their country by white men was likely to diminish their means of subsistence. 'White fellow come,' said an intelligent black native of a tribe residing beyond the Blue Mountains a few years ago,—'White fellow come, kangaroo all gone!' This impression, heightened to madness, as it must often have been, by the positive aggressions of the convicts, led not unfrequently, in the earlier years of the colony, to the desultory and abortive, but murderous, efforts of savage warfare. . . . But the vicious example of the convict population of the colony has already done much more to extinguish the miserable remnant of this degraded race, in all the more populous districts of the territory, than could have been effected, in a much longer series of years, by the united agency of war and famine and pestilential disease.

"It seems, indeed, to be a general appointment of Divine Providence, that the Indian wigwam of North America, and the miserable bark-hut of the aborigines of New Holland, should be utterly swept away by the flood-tide of European colonization; or, in other words, that races of uncivilized men should gradually disappear before the progress of civilization, in those countries that have been taken possession of by Europeans. Humanity may interpose for a season, for the preservation of savage man, and the Christian missionary may endeavour, successfully perhaps in some instances, to raise him from the darkness and the slavery of heathenism to the light and liberty of the gospel; but European vice and demoralization will, even in free colonies, ere long infallibly produce a rich harvest of misery and death among the choicest flowers of the forest; and the miserable remnant of a once hopeful race will at length gradually disappear from the land of their forefathers, like the snow from the summits of the mountains on the approach of spring."

In Malthus's *Essay on Population*,¹ will be found a character of the New Hollanders, founded on Cook's narrative

¹ Book i. chap. 3.

and on Collin's "Account of New South Wales," coinciding in all important particulars with the foregoing.

The **NEW ZEALANDER** rises above the New Hollander. The size of the brain is pretty nearly the same as that of the European, but the great predominance of size is in the region of the propensities. The anterior lobe is larger than in the New Hollander, but less than in



the European, while the coronal region above Cautiousness is broad, but extremely shallow. The character which this head indicates is one moderately intellectual, of considerable energy, cruel, cunning, cautious, vain, and decidedly deficient in Benevolence, Veneration, and Conscientiousness. Mr Earle describes them as active, shrewd, and intelligent. They toil by hundreds in their forests, hewing wood for the European dock-yards established on their coast. They cultivate potatoes and Indian corn, imitate the houses built by the English, decorate the interior of them with paintings and carvings, not inferior to what is found among some of the elder labours of the Egyptians. The chiefs do not consider labour disgraceful. They are exceedingly handsome. They murdered their female infants in great numbers, until they discovered that Europeans prized their young women. They roast and eat not only their enemies, but occasionally one of themselves. Mr Earle saw a female slave killed for running away, roasted, and eaten. See "Nine months' residence in New Zealand in 1827," pp. 10, 243.

The skull of a **NORTH AMERICAN INDIAN** is high from the ear upward, and short from the front to the back. The forehead is not largely developed, while Firmness, Secretiveness, and Cautiousness, are very prominently enlarged; as is also Destructiveness.



Adhesiveness and Concentrativeness, especially the latter, are small. When the previous editions of this work were published, the Society possessed only two casts of skulls of this race, the general form and appearance of which were similar, but since that time I have visited the United States of North America, and not only examined the extensive collection of *crania* of North American Indians belonging to Dr Morton, many of which are admirably represented in his work on the *Crania Americana*, but I have dug up skulls from a place of sepulture used by the Indians prior to the arrival of the Europeans in America, and I have also seen numerous living individuals of the race ; I have also seen Mr Catlin's interesting collection of Indian relicts, and conversed with him on the qualities of the people ; I am indebted to him also for several specimens of Indian *crania*. From all the information thus gained, I consider myself warranted in saying that a general character pervades the North American Indian *crania* corresponding with the following description of their dispositions :

“ To flee from an adversary that is on his guard, and to avoid a contest where he cannot contend without risk to his own person, and consequently to his community, is the point of honour with the American. The odds of ten to one are necessary to warrant an attack on a person who is armed and prepared to resist, and even then, each is afraid of being the first to advance. The great object of the most renowned warrior is, by every art of cunning and deceit, by every mode of stratagem and surprise that his invention can suggest, to weaken and destroy the tribes of his enemies with the least possible loss to his own. To meet an enemy on equal terms is regarded as extreme folly. To fall in battle, instead of being reckoned an honourable death, is a misfortune which subjects the memory of the warrior to the imputation of rashness and imprudence. But to lie in wait day after day, till he can rush upon his prey, when most secure, and least able to resist him ; to steal in the dead of night upon his enemies, set fire to their huts, and massacre the inhabitants,

as they flee naked and defenceless from the flames, are deeds of glory, which will be of deathless memory in the breasts of his grateful countrymen."¹

To this description it may be added, that these savages possess insuperable determination : when the fate of war has placed one of them in the power of his enemies, he knows that the most dreadful tortures await him ; but the point of honour then is to set the malignity of his tormentors at defiance, and to surpass in his powers of endurance the utmost limits of their barbarous inflictions of pain. The American savage, besides, as already noticed, has rarely been found a member of settled society, but has continued a wanderer since the sun first rose upon him in his deserts till the present day. Even contact with Europeans, surrounded by arts and enlightened by intelligence, has scarcely communicated one trace of improvement to this miserable race. When Europe has been conquered, the victorious and the vanquished have in a few ages amalgamated together, been blended into one, and have at last formed a single and united people. The native Americans have, on the contrary, almost uniformly receded before the Europeans.

A similar description of the American Indians, is given by Timothy Flint, in his "Recollections of Ten years' Residences and Journeys in the Valley of the Mississippi." "I have conversed," says he, "with many travellers that have been over the Stony Mountains, into the great missionary settlements of St Peter and St Paul. These travellers, and some of them were professed Catholics, unite in affirming, that the converts will escape from the mission whenever it is in their power, fly into their native deserts, and resume at once their old modes of life. The vast empire of the Jesuits in Paraguay has all passed away, and we are told the descendants of their convert Indians are noway distinguished from the other savages. It strikes me that Christianity is the religion of civilized man ; that the savage must first be civilized, and that as there is little hope that the present generation

¹ Malthus on Pop. B. i. ch. iv.

of Indians can be civilized, there is but little more that they will be Christianized," p. 145. These testimonies are all confirmed, and the development of brain is described from actual observations, by Dr Caldwell, in the following terms:¹—"The aborigines of North America are to be regarded, I think, as a variety of the Mongolian race. Certainly they are not of the Caucasian. In the course of my tour I had an opportunity of examining and measuring the heads of six nations or tribes of that unfortunate family of men.

"In the city of Washington were deputations of chiefs from the Cherokee, the Creek, and the Seminole nations; and in the state of New York, I visited the dwellings of the Oneidas, the Tuscaroras, and the Senekas.

"Without going into *details*, I can state only the *result* of my observations and admeasurements, which were often repeated in presence of intelligent and competent witnesses.

"The average size of the head of the Indian is less than that of the head of the *white man*, by the proportion of from an eighth to a tenth, *certainly from a tenth to a twelfth* part of its entire bulk. The chief deficiency in the Indian head lies in the superior and lateral parts of the forehead, where are situated the organs of Comparison, Causality, Wit, Ideality, and Benevolence. The defect in Causality, Wit, and Ideality, is most striking. In the organs of Combativeness, Destructiveness, Secretiveness, Caution, and Firmness, the functions of which constitute the dominant elements of the Indian character, the development is bold. The proportion of brain behind the ear is considerably larger in the Indian than in the white man. The organ of Adhesiveness in the former is small.

"This analysis, brief and imperfect as it is, unfolds to us much of the philosophy of the Indian character, and enables us, in a particular manner, to understand the cause of the peculiar inaptitude of that race of men for civil life. For, when the wolf, the buffalo, and the panther, shall have been completely domesticated, like the dog, the cow, and the house-

¹ *Phren. Journ.*, vol. iv. p. 191.

hold cat, then, and not before, may we expect to see the *full-blooded* Indian civilized like the white man.

“Of the mixt breed, which is very numerous, the cerebral development and the general character approach those of the white man in proportion to the degree of white blood which individuals possess;—On account of the marked superiority of his intellect, a *half-bred* seldom fails to become a *chief*.

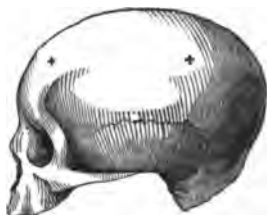
“A chief of the Creek nation, who, on account of his pre-eminence in eloquence, held the appointment of orator of the delegation, surpassed in a high degree all the others in the development of the organs of Ideality and Comparison. His addresses were replete with *metaphor*, and, for an uneducated speaker, marked with *taste*.

“Of the *full-blooded* Indians generally, permit me to remark, that such is their *entire unfitness for civilization*, that every successive effort to mould them to that condition of life, more and more deteriorates their character. Of the *mixt-bloods* this is not true. Hence the only efficient scheme to civilize the Indians, is to *cross the breed*. Attempt any other, and *you will extinguish the race*. To the truth of this the experience of every day bears ample testimony. The real aboriginal Indian is retreating before civilization, and disappearing with the buffalo and the elk, the panther and the grisly bear. Let the benevolent and enthusiastic missionary say what he may, the *forest* is the *natural home* of the Indian. Remove him from it, and, like the imprisoned elephant, he loses the strength and loftiness of his character. He becomes a hot-house plant, and dwindles in all his native efficiencies. This *problem* (for so by many it is considered) is solved *only*, but can be solved *easily*, by the lights of Phrenology. On this position it is my purpose to dwell more fully hereafter.

“The wisdom of Providence is manifested in the innumerable aptitudes of things that everywhere present themselves, and in none more clearly than in those which concern the human family. The vast American wilderness, the haunt of the deer and the elk, the bear and the buffalo, required a

race of savages to people it. But converted, as it already is, in part, and rapidly as that conversion is daily extending into cultivated fields and populous towns and cities, the abode of civilization, commerce, and the arts, the mere *man of the forest* is no longer wanted, and he is, therefore, passing away. He has flourished—he was needed; but he is needed no longer, and he therefore decays.”¹

The head of the BRAZIL INDIAN bears some resemblance to the former. The deficiency in Size is the same, indicating natural inferiority of mind, and the combination of organs is similar, only Firmness is not so great, and Concentrativeness and Philoprogenitiveness are moderate. The dimensions are annexed in the Table.



It is known that the Jesuits attempted to civilize a number of these tribes, and that, by humane and intelligent treatment, they acquired a great moral ascendancy over them, induced them to settle, and established something like order and the arts of social life among them. If their brains had

¹ Dr Morton, in his valuable work before mentioned, on “*Crania Americana*,” gives the results of measurements of the internal capacity of the skull, for the five principal races of mankind in cubic inches as follows:—

	Number. of Skulls	Mean internal Capacity.	Largest in the Series.	Smallest in the Series.
Caucasian, . .	52	87	109	75
Mongolian, . .	10	83	93	69
Malay, . . .	18	81	89	64
American, . .	147	80	100	60
Ethiopian, . .	29	78	94	65

Dr Morton presents other and more minute measurements, both anatomical and phrenological, of the size of the different regions of the skull in the American Indians, and adds, “I am free to acknowledge, that there is a singular harmony between the mental character of the Indian and his cranial developments, as explained by Phrenology.” * * *

Of all the tribes, the Creek Indians have made the greatest advances in civilization, and the drawings of their skulls, presented in Dr Morton’s work, shew a superiority in the development of the moral and intellectual organs in them when compared with the other Indians.

possessed the European development, the seeds of improvement, sown and fostered for years by a protecting hand, would have sprung up, flourished vigorously, and produced an abundant harvest of permanent civilization ; but the picture is precisely the reverse.—“It must be admitted” (says the reviewer of *Koster’s Travels in Brazil*) “that Mr Koster’s representation of the Indians is by no means favourable ; and the opinions which he expresses are of the more weight, because, as his feelings and principles are of the best kind, they lead him always to judge charitably, and to look forward with hope. Infinitely ameliorated as the condition of the Indians has been, theirs is still no very desirable state of existence ;—they are always regarded as children, and not always treated as they were by the Jesuits, with paternal kindness. But when they escape they shew little capability of acting for themselves, and an evident tendency (as if instinctive) to return to a wandering and savage life ;—it does not arise from any feeling connected with the love of their ancestors, or a tradition of their free state ; they do not appear to know that their ancestors had been slaves, much less would any knowledge be preserved of their anterior state. The Indian who has escaped from control scarcely ever plants for himself,—if he does, he sells the growing crop for half its value, and removes to some other district ; fishing and hunting are his favourite pursuits, and he is never stationary for any length of time, unless it be near a lake or a rivulet.” The strangest and worst part of their character is their want of natural affection,—an old charge against them, which Mr Koster’s unexceptionable testimony confirms. “They appear,” he says, “to be less anxious for the life and welfare of their children, than any other race of men who inhabit that country.”

These observations present the most fertile field of speculation to the phrenologists. The cast of the Brazil Indian shews a deficiency in size compared with the European ; and hence it corresponds with the fact, that these Indians are regarded and treated as children, that they are destitute of foresight, and of that degree of steadiness of purpose which

pursues a remote advantage through numerous intervening obstacles. Their brains are inferior in size even to those of the North American Indian, and their degradation has been more abject. They have worn the chains of slavery, and lived ; while the proud, fierce, and resolute North American has yielded up his soil and his life, but never his personal freedom, to his European conqueror.

The Brazil Indians, however, have derived some improvement from education, although it has not supplied the defect of native energy. "If education has hitherto done little in implanting good qualities, it has done much in eradicating evil ones. They were among the fiercest and most revengeful of the human race ; they are now quiet and inoffensive, rarely committing murder (in a country where murder is accounted venial, and generally obtains impunity, if not applause) ; and even those who are dishonest confine themselves to pilfering."

Mr Koster draws the following comparison between the Negro and the Brazil Indian :—"The Negro character," says he, "is more decided ; it is worse, but it is also better."—"The Indian seems to be without energy or exertion, equally incapable of great evil or of great good. Rich mulattoes and negroes are not uncommon ; there is no instance of a wealthy Indian, nor did he ever see an Indian mechanic. The priesthood is open to them, but to little purpose. Mr Koster heard of only two Indians who were ordained as priests, and both died of excessive drinking."

It would be interesting to know whether the native Mexican brain is better developed, for a rude form of society existed in Mexico before the European conquest.

The skull of the NEGRO evidently rises in the scale of development of the moral and intellectual organs : the forehead is higher, and the organs of the sentiments bear a larger proportion to those of the propensities, than in



the New Hollander.¹ The organs of Philoprogenitiveness and Concentrativeness are largely developed ; the former of which produces the love of children, and the latter that concentration of mind which is favourable to settled and sedentary employments. The organs of Veneration, Wonder, and Hope, also, are considerable in size. The greatest deficiencies lie in Conscientiousness, Cautiousness, Ideality, and Reflection. The dimensions of this skull are given in the table.

Timothy Flint says, " The Negro, easily excitable, in the highest degree susceptible of all the passions, is more especially so of the mild and gentle affections. To the Indian, stern, silent, moody, ruminating, existence seems a burden. To the Negro, remove only pain and hunger, it is naturally a state of enjoyment. As soon as his toils are for a moment suspended, he sings, he seizes his fiddle, he dances."

The different tribes which inhabit Africa present very different appearances in point of civilization ; but none of them have made so great a progress as the European nations. I have been informed by persons who have been long resi-

¹ In the Philosophical Transactions for 1836, part ii., Professor Tiedemann of Heidelberg has attempted to prove, by measurements, that the Negro brain is equal in size, and similar in structure, to that of the European. Dr A. Combe has shewn that Tiedemann's facts, even as reported by himself, lead to an opposite conclusion in regard to the relative sizes of the brain in the two races.

The results of Tiedemann's own measurements are the following :—

		Inches.	Lines.
Average length of brain in	4 Negroes, . . .	5	11
... ..	7 European males,	6	2½
... ..	6 ... females,	5	10½
Average greatest breadth in	4 Negroes, . . .	4	8½
... ..	7 European males,	5	1½
... ..	3 ... females,	5	4½
Average height of brain in	3 Negroes, . . .	2	11½
... ..	7 European males,	3	4
... ..	4 ... females,	2	9½

Dr A. Combe's " Remarks on the Fallacy" of Tiedemann's comparison are published in *The Phrenological Journal*, vol. xi. p. 13 ; and they are reprinted in my translation of " Gall on the Cerebellum."

dent in the West India Islands, that great differences are observed in the natural talents of the Negroes, according to the provinces from which they have been brought. Some parts of Africa yield persons capable of becoming excellent operative mechanics; others, clerks and accountants; and some mere labourers, incapable of any intellectual attainment. It would be interesting to learn in what respect they differ in the forms of their heads.

Some African tribes surpass others also in energy of character as well as in mechanical skill. "The Caffres are entirely black, but bear no trace of the Negro features. In the form of their skull and face they differ little from the most perfect Europeans." This race is ingenious in several arts; but, on account of their constant wars, agriculture is in a depressed state. Although their coast is covered with excellent fish, they do not catch them, and indeed have no boats or canoes. Marriage is invariably conducted by sale. The Boshuans are represented as "gay, gentle, and peaceable" in their manners; yet they carry on war as fiercely as all other barbarians.—Mr Campbell having in the course of religious instruction, asked one of them, 'for what end man was made,' the answer was, 'for plundering expeditions.'¹ Mr Bowditch gives an account of the Ashantees, by which it appears that they display great activity and considerable ingenuity of mind; but that they are debased by the most ferocious dispositions and the grossest superstition. The descriptions given by a variety of travellers of Timbuctoo, and of the commerce carried on upon the Niger by the natives of Africa, if they can be at all depended upon, also indicate considerable scope of mind, and some capacity for the social state, and place the Africans decidedly above the native Americans; all these facts coincide with the expectations which a phrenologist would form, on examining the different skulls of these different races.

¹ Leyden and Murray's *Historical Account of Discoveries and Travels in Africa*, vol. ii. pp. 332, 350.

One feature is very general in descriptions of the African tribes ; they are extremely superstitious. They purchase *fetiches*, or charms, at a high price, and believe them to be sure preservatives against all the evils of life. This character corresponds with the development which we observe in the Negro skulls ; for they exhibit much Hope, Veneration, and Wonder, with comparatively little reflecting power. Their defective Causality incapacitates them for tracing deeply the relation of cause and effect, while their great Veneration, Hope, and Wonder, render them prone to credulity, and to regard with profound admiration and respect any object which is represented as possessing supernatural power.

I have studied the crania and living heads of North American Indians and of Negroes in various parts of the United States, and, after considering their history, I submit the following remarks. The North American Indians have given battle to the Whites, and perished before them, but have never been reduced either to national or to personal servitude. The development of their brains shews large organs of Destructiveness, Secretiveness, Cautiousness, Self-Esteem, and Firmness, with deficient organs of Benevolence, Conscientiousness, and Reflection. This indicates a natural character that is proud, cautious, cunning, cruel, obstinate, vindictive, and little capable of reflection or combination. The brain of the Negro, in general (for there are great varieties among the African race, and individual exceptions are pretty numerous), shews proportionately less Destructiveness, Cautiousness, Self-Esteem, and Firmness, and greater Benevolence, Conscientiousness, and Reflection, than the brain of the native American. In short, in the Negro brain the moral and reflecting organs are of larger size, in proportion to the organs of the animal propensities now enumerated, than in that of the Indian. The Negro is, therefore, naturally more submissive, docile, intelligent, patient, trust-

worthy, and susceptible of kindly emotions, and less cruel, cunning, and vindictive, than the other race.

These differences in their natural dispositions throw some light on the differences of their fates. The North American Indian has escaped the degradation of slavery, because he is a wild, vindictive, cunning, untameable savage, too dangerous to be trusted by the white men in social intercourse with themselves, and, moreover, too obtuse and intractable to be worth coercing into servitude. The African has been deprived of freedom and rendered "property," because he is by nature a *tame* man, submissive, affectionate, intelligent, and docile. He is so little cruel, cunning, fierce, and vindictive, that the white men can oppress him far beyond the limits of Indian endurance, and still trust their lives and property within his reach ; while he is so intelligent, that his labour is worth acquiring. The native American is free, because he is too dangerous and too worthless a being to be valuable as a slave : the Negro is in bondage, because his native dispositions are essentially amiable. The one is like the wolf or the fox, the other like the dog. In both, the brain is inferior in size, particularly in the moral and intellectual regions, to that of the Anglo-Saxon race, and hence the foundation of the natural superiority of the latter over both ; but my conviction is, that the very qualities which render the Negro in slavery a safe companion to the White, will make him harmless when free. If he were by nature proud, irascible, cunning, and vindictive, he would not be a slave ; and as he is not so, freedom will not generate these qualities in his mind ; the fears, therefore, generally entertained of his commencing, if emancipated, a war of extermination, or for supremacy over the Whites, appear to me to be unfounded ; unless after his emancipation, the Whites should commence a war of extermination against him. The results of emancipation in the British West India Islands have hitherto borne out these views, and I anticipate that the future will still farther confirm them.

The heads of the **SANDWICH ISLANDERS** are under rather than equal to the average size of the European; and the race certainly does not indicate so high a natural character as the European, although closely approaching to it. The Phrenological Society possesses five skulls of the Sandwich Islanders. They are characterized by the long form of the Caucasian variety. The coronal region is broad and tolerably well developed, but not equal in height above Cautiousness and Causality to the European. The anterior lobe, manifesting the intellect, is pretty well developed, and larger than that of the Negro-American Indians, and New Hollanders. All of them have a considerable portion of Eventuality, a faculty which Dr Gall long ago denominated *Educability*, and which must greatly expedite civilization. Three of the skulls are ancient, and having been obtained from the older *Morais* or burial-places, probably afford correct specimens of the heads of the aboriginal inhabitants, before the islands were discovered by Captain Cook. This navigator found this race very superior to most of the other savage tribes which he visited:—Their advance towards civilization is evinced by their respectful reception of the bodies of their king and queen, who had died in London,—by the appearance of their chiefs in English mourning,—by their procession to the church, and the high improvement conspicuous in the whole community,—circumstances which have been noticed in detail in a narrative of the voyage of the Blonde Frigate to the Sandwich Islands, published in the year 1826.¹



The brains of the **EUROPEAN NATIONS** differ con-

¹ A more particular account of the Sandwich Islanders will be found in the *Phrenological Journal*, vol. iii. p. 421.

siderably from each other, but a common type characterizes them all, and distinguishes them from those now described. They are larger than the Hindoo, American Indian, and Negro. This indicates superior force of mental character. The anterior lobe, and the coronal region, are

SWISS SKULL.



more amply developed in proportion to the base and posterior inferior parts of the brain, in them than in the latter. They indicate a higher natural power of reflection, and a greater natural tendency to justice, benevolence, veneration, and refinement, than the others. The organs in which the European brain in an especial degree excels, are Ideality, Conscientiousness, Causality, and Wit. The organs of these faculties are almost invariably small in barbarous and savage tribes. The European skull belongs to the Caucasian variety of Blumenbach, which he considers as the most beautiful and perfect of all the national crania in the world; and in this point he and the phrenologists agree. The cut represents a Swiss skull, which is very favourably developed in the region of the moral sentiments. If the space above the asterisks, Cautiousness and Causality, be compared with the same region in the New Zealander or New Hollander, a very marked inferiority in the latter will be observed.

The ANCIENT EGYPTIANS appear, from the stupendous monuments of arts and science left behind them, to have been a highly intelligent and civilized people: and it is a striking fact, that the skulls of ancient mummies almost invariably belong to the same class with those of modern Europeans. In the Society's collection, there are two skulls of mummies, five casts of the skulls of mummies, and I have seen or obtained accurate descriptions of the skulls of half a dozen more:—full size, full development of the anterior lobe, and broad coronal region, characterize them all. The coronal region, however, is not high, and this is the point

in which their inferiority to modern European skulls chiefly consists.

The Society possesses also several skulls of ANCIENT GREEKS. They are large, and exhibit a favourable development of the coronal region and intellect, combined with large organs of the propensities. In particular, the organs of Constructiveness and Ideality are large, and, in this respect, they form as striking a contrast to the skulls of the New Hollanders, as the hovels of the latter do to the temples and works of art of the Greeks.

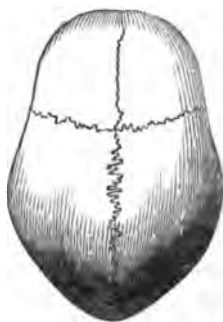
ANCIENT GREEK.



These facts appear to indicate, that when nations are independent, and left at liberty to follow the bent of their own judgments and dispositions, their institutions spring from the peculiar mental constitutions which they have respectively received from nature, and that this constitution is in accordance with the development of their brains. Climate and other external causes modify to some extent the effects of natural endowment, but the distinguishing features of each people seem to bear a more direct and uniform relation to the size and form of their brain, than to those adventitious circumstances. When a people is subjugated by a foreign power, as the Greeks by the Turks, and the Italians by the Austrians, the national character has no adequate opportunity of unfolding its peculiarities; and hence, if this circumstance be overlooked, the same race may seem to present different characteristics at different periods of their history. The modern Greeks, it was lately said, no more resemble their ancestors, than the Hindoos the Europeans: and this was urged as an insuperable objection against Phrenology. Now, however, when the Turkish yoke is broken so as to allow the native qualities to shoot, we see the same force of character, the same deliberate and determined heroism, the same capacity for stratagem in war, all the fickleness and proneness to dissension, and the same ascendancy of passion

which distinguished the Greeks in the days of Pericles, re-appearing in their descendants. Many millions of Hindoos, Africans, and American Indians, have been for ages independent of a foreign yoke, and never displayed qualities such as those exhibited by independent Europeans.

Dr Vimont, in his *Traité de Phrenologie*¹, has published a valuable chapter, in which he describes, among others, the characteristic features of the German, French, and English heads and nations with great accuracy. He pronounces an eloquent eulogium on the Scotch character,² which derives a greater value from the unprejudiced and enlightened spirit in which he speaks of his own, the English, and other nations. He regrets that he is not informed concerning the Scotch and Irish developments of brain: In *The Phrenological Journal*, vol. ii. p. 169, some observations on the Irish head are recorded. We invite him to come to Scotland, and form his own judgment of our national heads. The SCOTCH lowland population, which has done every thing by which Scotland is distinguished, excepting in the department of war, is a mixed race of Celts and Saxons. The long head of the Celts, is combined with the large reflecting and moral organs which characterize the Germans. The following is an average specimen of the Scotch lowland head:—



¹ Tome ii. p. 470.

² *Lib. Cit.* vol. ii. p. 490.

The SCOTCH lowland head is rather large ; and considerable variety of temperament exists among the people. In the labouring classes, the lymphatic and nervous, with an infusion of the bilious temperament, is very common ; the hair is of a sandy colour, the skin pale, the figure heavy, but the eyes are blue and clear : The individuals are capable of long enduring efforts. The organs of Amativeness are considerable, and Philoprogenitiveness, and Adhesiveness, large : and domestic attachment is a striking characteristic of the race. Combativeness and Destructiveness are generally large, and the people are irascible, fond of war, and addicted to the worst species of mischief, the wanton destruction of objects of utility and ornament. They are also not particularly merciful to the lower animals. The organs of Secretiveness, Cautiousness, and Firmness, are generally large ; and the Scotch are remarkable for prudence, *savoir faire*, and perseverance. Self-Esteem and Love of Approbation are large, and relatively to each other equally developed ; the consequence of which is, that the Scotch stand in the middle line between the English and the French in regard to these faculties. In the English, Self-Esteem predominates, and their vices are pride and egotism : In the French, the Love of Approbation predominates, and they are prone to vanity, and shew a deficiency of dignity and self-respect. The Scotch, with equal Self-Esteem with the English, temper its manifestations by Love of Approbation, and present a mitigated egotism that is not offensive to foreigners. With Love of Approbation equal to the French, but restrained by a larger Self-Esteem, Cautiousness, and Secretiveness, they exhibit a more dignified and reserved politeness. The organs of Acquisitiveness are generally large in the Scotch, and, taken in connection with large Self-Esteem, the result is a strong infusion of selfishness, or at least of attention to self-interest. Aided by Cautiousness, Secretiveness, Firmness, and the moral and intellectual organs, this combination renders them generally successful, when placed in competition with other nations, in the career of wealth ; and it coincides also with

the fact that the Scotch rapidly acquired capital when the markets of England and its colonies were opened to their industry. In the Scotch head the organs of Benevolence, Veneration, and Wonder, are generally largely developed : large Conscientiousness is common, but not nearly so prevalent as these, and Hope, in general, is only moderately developed. The combination of Adhesiveness, Benevolence, Conscientiousness, and Firmness, gives the Scotch an attached, faithful, and trust-worthy character. The combination of Veneration, Wonder, and Conscientiousness, renders them religious ; but their great Destructiveness, Cautiousness, and Firmness, give a dark and stern character to their faith. They are sincere and ardent in their religious impressions, and cannot conceive the possibility of any form of belief being acceptable to God except their own. They are in consequence regarded by the other European nations as bigoted and intolerant ; but this character, in so far as justly attributable to them, is the result rather of an undoubting sincerity in their own belief, than of feebleness of intellect or deficiency of generous sentiment. The enlightenment of the understanding of the people will correct these errors. The organs of Ideality and Imitation are only moderately developed in the Scotch, and they are not remarkable for quickness in adopting new modes, nor for refinement. They are a homely people. The anterior lobe of the brain devoted to intellect is generally well developed. The organs of Individuality, Form, and Constructiveness, however, are relatively deficient. Hence the Scotch do not excel in precise knowledge of details, nor in the fine arts. The organs of Time are larger than those of Tune ; and the national music presents a combination of a few notes generally expressive of boldness, affection, tenderness, or melancholy, formed into simple melodies strongly marked by time. They have little genius for the pleasures of refined harmony. The organs of Colouring are in general only moderately developed, and it is often remarked, that, in their selections of colours, in furniture, dress, and ornaments, the Scotch are by no means successful. Order and Number are tolerably large, and the national character is

orderly and calculating. The organs of Language are moderate in size : Eventuality and Comparison are generally full, and Causality is frequently met with large. Causality is more frequently larger than Comparison in the Scotch head than in those of the English and French : Concentrativeness is generally large. Wit is full, though not large. The combination of deficient Form and Individuality, with large Concentrativeness, Comparison, and Causality, accounts for the Scotch intellect being speculative and analytic rather than given to observation in philosophy. The intellect of the Scotch appears in their music : Their national melodies, with much simplicity, display great completeness : Every note hangs on another by necessary connexion, so that it could not be separated without deranging the whole. There is no incongruity. Each melody is a system. This combination of intellectual organs, joined with large moral organs, gives them that love of moral and metaphysical disquisition which distinguishes them ; while it explains also their singular want of practical observation in mental science. Reid, Stewart, and Brown knew enough of Bacon's rules of philosophizing to be aware of the necessity of facts, as the foundation of all science ; but they were so little given to practical observation that they looked chiefly into their own minds, and into books, for their data in regard to the qualities of human nature. They in consequence missed the facts which most forcibly strike a practical observer, viz. the existence of such propensities as Combativeness, Destructiveness, Acquisitiveness, and Cautiousness ; and also the great differences in the strength of particular faculties in relation to the others which occur in different individuals. How much of reasoning in proportion to accurately described facts do Scotch Journals and works in general contain ! The combination of full Wit, with large Secretiveness, accounts for the Scotch being famed for practical humour. Sir Walter Scott's works give many just representations of the national character in this particular. When Dr Spurzheim was in Scotland, he remarked, that the Scotch needed only a higher temperament to become one of the first nations in Europe.

Dr Vimont describes the GERMAN head, of which Dr Spurzheim's skull, represented in vol. ii. p. 286, is a correct, although favourable specimen, in the following terms: "The regions of the reflective faculties, of Cautiousness, and of the moral sentiments, are all largely developed. Veneration and Benevolence, in particular, are well marked. The perceptive faculties considered generally, with the exception of Tune, are moderately developed. The organs of Ideality, Constructiveness, and Gustativeness, are often very prominent, Secretiveness and Self-Esteem are also very conspicuously large.

"The French head is smaller than the German. The region of the perceptive faculties is generally larger, while the organs of reflection are smaller in the French than in the Germans. The organs of Tune and Number are larger in the Germans. The French are generally deficient in the organs of Cautiousness. The organs of Individuality, of Colour, and Form, are generally large in the French, as also those of Comparison, Wit, Wonder, and Poetry. The organs of Constructiveness, Imitation, and of the sense of the beautiful in the arts, are also large in them, particularly the last two. "The organ of Love of Approbation or vanity generally predominates. Benevolence is well developed; but Veneration, Self-Esteem, and Firmness, are not so. The inhabitants of Normandy and Brittany form exceptions in regard to the last two named faculties. Born in Normandy, and having in consequence had occasion to examine a great number of the heads of the inhabitants of this province, I am convinced that Self-Esteem and Firmness are largely developed in them. Among the Bretons, Firmness is often very large, but the head is in general not so high as in the Normans."

Dr Vimont adds, "It is conceivable that among a population exceeding thirty millions, and in a territory presenting upwards of 26,000 square leagues, remarkable varieties of organization should be met with. It would be desirable that they were studied in the principal provinces of which France is composed. Regarded in a philosophical and phrenologi-

cal point of view, they could not fail to prove interesting to persons who occupy themselves with science, and to present results of incalculable value for those who are at the head of the Government.

"I cannot avoid citing on this occasion some remarks of one of our most distinguished men, Baron Charles Dupin, because they relate directly to the subject in hand. Of all the provinces of France those of the north are most remarkable on account of their superior industry and intelligence. Almost all manufactured articles come from the north. The number of primary schools is more considerable in the north than in the south. Of 1933 pupils admitted into the Polytechnic School during thirteen consecutive years, 1233 were furnished by the departments of the north, while the departments of the south have given only 700. Of 65 members of the Academy of Sciences 48 come from the departments of the north, and 17 from the departments of the south. Finally, of 2112 patents for inventions delivered from the 1st of July 1791 to the 1st of July 1825, 1699 have been delivered to the departments of the north, and only 413 to those of the south. Such great differences, founded on observations of indisputable authenticity, deserve every attention from phrenologists.

"Let us return to the relations which exist between the predominant organs of the French and the most striking features of their moral and intellectual character. The superior development of the reflective faculties of the Germans becomes apparent in its results. There is perhaps no country in the world where primary instruction is more widely diffused than in Germany:—Where a taste for reading is more decided: and in this respect the Germans are greatly superior to the French, among whom instruction has hitherto penetrated only into the great towns. Germany abounds in thinkers and philosophers of the first order; but it is necessary to remark, that their reflective faculties, so excellent in themselves, often give to their writings a character of tediousness and obscurity, which is not met with among French authors, whose thoughts, although they often present less

depth than those of the Germans, infinitely surpass them in elegance, clearness, and precision.

"The great difference which exists between the development of Firmness and Cautiousness in these two nations explains that which is observable in the spirit of their actions. The French, under the influence of moderate reflective faculties, and a small development of Cautiousness and Firmness, are light, expansive, unreserved, and easily moved. The Germans, on the other hand, are grave, tenacious, reflective, and circumspect. The want of foresight frequently shews itself in the institutions of the French; the contrary takes place among the Germans. Napoleon, in speaking of the French, said--'The nation, in its character and tastes, is provisional and lavish;—every thing for the moment and caprice—nothing for endurance! such are the motto and manners of France! Every one passes his life in doing and undoing;—nothing ever remains. Is it not unbecoming that Paris had not even a French theatre, nothing worthy of her destinies? I have often resisted fêtes which the City of Paris wished to give me. These were dinners, balls, fire-works, which would have cost 4, 6, or 800,000 francs;—the preparations for which obstructed the public for several days, and which cost subsequently as much to undo them as they had cost in their construction. I proved, that with these foolish expenses they might have erected durable and magnificent monuments.'—(Las Cases, *Mémoires de Sainte-Helene*.)

"Duclos, in his *Considerations on Manners*, has represented, with great fidelity, the character of the French. 'The great defect of the French character,' says he, 'is to be always young;—by which circumstance it is often amiable, but rarely steady. It has almost no ripe manhood, but passes from youth directly to old age. Our talents of every description appear early. We neglect them for a long time by dissipation, and scarcely do we commence to turn them to account before their time is past.

"The extreme lightness of the French, arising in part from the small development of Cautiousness, has been signalized

by Jean Jacques Rousseau. 'The French,' says this great writer, 'have a manner of interesting themselves about you which deceives more than words. The fulsome compliments of the Swiss can impose only on blockheads:—the manners of the French are more seductive, because they are more simple. One would believe that they do not tell you all that they would wish to do for you, in order to cause you the more agreeable surprise. I shall say more; they are not false in their demonstrations; they are naturally officious, humane, benevolent, and even, whatever may be said on the subject, more true than any other nation; but they are volatile and light: They really feel the sentiment which they express, but that sentiment goes as it came. In the act of speaking to you they are full of interest about you. When they see you no more,—they forget you. Nothing is permanent in their affections: every thing with them is the work of the moment.'—(Rousseau, *Confessioins*.)

"The great development of the sense for what is fine in the arts, combined with the faculties of Form, Imitation, Ideality, and the sense of construction in general, sufficiently conspicuous in the crania of the French, explain why they are the first people in Europe for the finish and exquisite taste of their manufactured articles. There is nothing comparable to the productions of manual labour in France. It is to the same faculties that we must attribute the high superiority of the French as painters and statuaries.

"Two faculties, the organs of which are largely developed in the French, Love of Approbation and Combativeness, coincide exactly with their character. The desire of being approved,—of putting itself forward, is incontestibly the portion of our nation. If this desire be united to energetic reflecting faculties, it may give rise to great results, because it operates as a spur to the other powers. If not so combined, it produces only abuses. The man who possesses only vanity, seeks by all possible means to give himself the appearance of merit and of knowledge. This accounts for that excessive love of the French for titles, for *cordons*, and all those baubles which impose on nobody but blockheads and the most super-

ficial of mankind. To the same cause must be ascribed all those plots, those cabals, and those miserable intrigues which, in France, reign in the bosoms of all learned societies. It is the unbridled desire to be spoken about, which creates the coteries, and strikes with a mortal blow every kind of honourable emulation. It would be difficult to calculate how many faults the sentiment of vanity has produced in France, and with how many misfortunes it has inundated this fine nation, which would do well, as Napoleon remarked, to exchange its vanity for pride.

“Courage, the other distinctive faculty of the French, is too well known to be insisted on. The French have already afforded every proof of bravery which a nation can exhibit.

“I have said that the sentiment of Veneration, that is to say, the faculty which disposes us to respect men and things, is little developed in the French. It is to this deficiency of development that the want of religion, nearly general in France, falls to be attributed. To the same cause must be ascribed the destruction and neglect of a multitude of monuments, for which other nations exhibit a kind of worship. In France, and particularly in Paris, a great number of extremely curious edifices exist, known to and venerated by foreigners, of which the inhabitants of this capital know nothing. Speaking generally, we may say, that every thing that presents a character of antiquity is displeasing to the French. The low degree of veneration, united to the great development of the talent of discrimination, or of combination, produces among the French that love of sarcasm and of raillery which attacks all without distinction of rank, merit, or fortune. This spirit generally manifests itself under the form of caricatures, which is easily to be conceived when we attend to the great development of the organs of Constructiveness and Form in the French.

“The great difference which exists between the French and Germans in the organs of Alimentiveness accounts for the difference between the two nations in sobriety. After the Spaniards, no nation in Europe is more sober than the French, while the Germans are essentially great feeders.

Among a pretty considerable number of German, Spanish, and French soldiers, who were in the same hospital at Caen, I have observed that a remarkable difference existed among them in regard to the faculty in question. A light soup, some fruit, or a little meat, were sufficient for the Spaniards; the repast of the French consisted of three-fourths of the portion; while the Germans swallowed the whole allowance, and continually complained that they did not receive enough of meat and of potatoes. Every time I happened to pass the wards where the Germans were placed, I was certain to be assailed by the words *flesh, flesh, Sir!*¹

“The organs of Wonder and Imitation, largely developed in the French, contribute to distinguish them from other nations. This combination explains why all that is new strikes them, and also their eagerness to reproduce it. Who can calculate the varieties in the forms of French dress even within a single age. These changes frequently have relation to extraordinary personages or events. From the extreme development of Imitation in the French, their marked gesticulations arise. Every class has its own, which is peculiar to it, and every one repeats it as one learns a form of politeness. Under the Influence of Imitation, Love of Approbation, and the sense of the beautiful, the French are to some extent mannerists; but with taste and ease, and without awkwardness. Although the English attempt to ridicule our nation on this account, I am satisfied that they try to imitate us, although not very successfully. Although the reflecting organs are in general only moderately developed in the French, this is not a sufficient reason for believing that only a small number of individuals of the highest order of intellect appear among them. No nation in Europe has furnished so many men distinguished in the arts, sciences, and philosophy as France; and if we reflect that instruction is little diffused in this country, we may believe that the number of superior men would otherwise have been still more considerable,” p. 487.

¹ The organ in question was little developed in the heads of five Spanish prisoners who died in France.

"During my stay in London, I went almost every Sunday to the churches. The result of my remarks may be shortly stated. Considered generally, the size of the heads of the inhabitants of London do not differ much from that of the Parisian heads:¹ in particular points the differences are very striking. In equal numbers, the reflective faculties are more developed in London than in Paris; and the same rule holds in regard to Cautiousness, Firmness, and Self-Esteem. The organ of Alimentiveness is larger in the English, and to this cause is to be ascribed their love of spirituous liquors. Drunkenness is the predominant vice of the English." Dr Vimont quotes from Bulwer's "England and the English," the number of persons entering gin-shops within certain periods of time, and adds, "the Scotch, and particularly the Irish, appear to be greatly addicted to spirituous liquors. I have never spoken to an Irishman who has not assured me that idleness, and particularly drunkenness, were the dominant vices of the mass of the Irish population."² P. 489.

"The organs of Number are larger, while the organs of Constructiveness, Form, and of beauty in the arts, are smaller in the English than in the French," p. 490.

The Phrenological Journal, vol. viii. pp. 289 and 424, contains a valuable Essay, by Mr Robert Cox, on the character of the Esquimaux, illustrated by figures of their skulls. In that work a variety of additional illustrations of the relation between national character and national development of brain, will be found.

¹ According to my observation the London heads are larger.—G. C.

² Idleness is the misfortune, not the fault, of the mass of the Irish people. The country is occupied by a dense population belonging to the lower ranks, reared on small patches of land, and it is nearly destitute of capital, of manufactures, and of middle and higher classes; the consequence of which is, that the great body of the Irish people cannot get work, although anxious to obtain it. They are idle of necessity, therefore, and not from inclination. When they come to England or Scotland, and obtain employment, they are extremely active and industrious labourers.—G. C.

MEASUREMENTS OF NATIONAL SKULLS.									
	From Phi- loprogeni- tiveness to Individuali- ty.	From Con- centra- tiveness to Com- parison.	From Ear to Philo- progeni- tiveness.	From Ear to Indi- viduality.	From Ear to Firmness.	From Ear to Bene- volence.	From De- structive- ness to De- structive- ness.	From Se- cretive- ness to Se- cretive- ness.	From Se- cretive- ness to Cautious- ness.
	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Inches.
Hindoo.....	6 $\frac{5}{8}$	6 $\frac{1}{8}$	3 $\frac{5}{8}$	4	4 $\frac{7}{8}$	5 $\frac{1}{8}$	4 $\frac{4}{8}$	5	5 $\frac{1}{8}$
Carib.....	7 $\frac{2}{8}$	5 $\frac{3}{8}$	4 $\frac{7}{8}$	4 $\frac{1}{8}$	5 $\frac{1}{8}$	4 $\frac{2}{8}$	5 $\frac{0}{8}$	5	5 $\frac{0}{8}$
New Hollander.....	7 $\frac{3}{8}$	5 $\frac{7}{8}$	5	4 $\frac{2}{8}$	5 $\frac{1}{8}$	4 $\frac{5}{8}$	5	5	4 $\frac{2}{8}$
Negro.....	7 $\frac{4}{8}$	7	4 $\frac{2}{8}$	4 $\frac{2}{8}$	5 $\frac{1}{8}$	5 $\frac{1}{8}$	4 $\frac{4}{8}$	5	5 $\frac{3}{8}$
American Indian.....	6 $\frac{2}{8}$	5	3 $\frac{0}{8}$	4 $\frac{7}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$
Brazil Indian.....	6 $\frac{3}{8}$	5 $\frac{7}{8}$	3 $\frac{0}{8}$	4 $\frac{2}{8}$	4 $\frac{0}{8}$	4 $\frac{7}{8}$	4 $\frac{0}{8}$	4 $\frac{7}{8}$	4 $\frac{7}{8}$
Swiss.....	6 $\frac{7}{8}$	6 $\frac{2}{8}$	4	4 $\frac{2}{8}$	5 $\frac{1}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{7}{8}$	5 $\frac{4}{8}$
Ancient Greek.....	7	6 $\frac{2}{8}$	4 $\frac{1}{8}$	4 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$
Sandwich Islander.....	7	6 $\frac{1}{8}$	4	4 $\frac{2}{8}$	5	4 $\frac{7}{8}$	5	5 $\frac{2}{8}$	5 $\frac{2}{8}$
Mummy.....	7 $\frac{3}{8}$	6 $\frac{4}{8}$	4 $\frac{5}{8}$	4 $\frac{5}{8}$	5 $\frac{2}{8}$	5 $\frac{2}{8}$	5 $\frac{4}{8}$	5 $\frac{7}{8}$	4 $\frac{7}{8}$

The effects of temperament are distinguishable in national skulls. The grain of the New Holland skull is extremely rough and coarse; that of the Hindoos, fine, smooth, and compact, more closely resembling ivory; the Swiss skulls are open and soft in the grain, while the Greek are closer and finer. There would be a corresponding quality of brain in the individuals, which would influence the mental character.

The Phrenological Society have more specimens of national skulls than are here noticed. They afford interesting materials for philosophical reflection, but the great length to which this work has extended, compels me to omit the notice of them.

The measurements in the foregoing table do not represent the size of any organs in particular, for the reasons stated in vol. i. p. 156. They are intended to indicate merely the size of the skulls. They do not, however, accomplish this object successfully, in consequence of the impossibility of measuring irregular spheres by diameters. They are therefore indications merely of the length of the particular lines stated in the different skulls; from which a rough estimate of the relative dimensions of the skulls may be formed. A scientific mode of measurement is much wanted.¹ These measurements are taken from so very few skulls, that they cannot be given as statements of averages of national crania. They are presented merely to shew the interest of the investigation. The Negro skull is a very favourable specimen, and the Swiss is rather above an average.

The real characters of foreign nations will never be philosophically delineated, until travellers shall describe their temperaments, and the size and combinations of their brains. Blumenbach's extensive work on National Crania is destitute of moral interest, owing to his omission of all notice of the characters of the nations whose heads he represents.

¹ Dr Morton and his friend Mr Phillips have endeavoured, in the *Crania Americana*, to supply an improved method of ascertaining the size of the different regions of the skull, which I beg leave to recommend to the attention of the scientific student of Phrenology.

ON THE IMPORTANCE OF INCLUDING DEVELOPMENT OF
BRAIN AS AN ELEMENT IN STATISTICAL INQUIRIES
INTO THE MANIFESTATIONS OF THE ANIMAL, MO-
RAL, AND INTELLECTUAL FACULTIES OF MAN.

THE European public has recently taken a great and commendable interest in moral statistics ; and in France several valuable works have been published on the subject. I have perused with much interest the " *Essai sur la Statistique Morale de la France*, par Mons. A. M. Guerry,"¹ and Mons. Quetelet's excellent work " *Sur L'Homme et le développement de ses facultés, ou Essai de Physique Sociale.*"² The object of all works on moral statistics should be to bring to light the causes of human happiness and misery, with a view to enable mankind to increase the former, and diminish the latter. Tables shewing the average weight and strength of the body at different ages ; the average weight of children of different ages employed in manufactures, compared with that of children not so employed ; the average strength of men and women at different ages ; the number of beats of the heart, and of inspirations of the lungs in a minute ; and other similar facts, founded on observations made on numerous individuals, and reduced to average results, are interesting and useful, because the facts brought to light may direct the efforts of society in devising circumstances calculated to promote the increase of valuable qualities, and to abate that of tendencies which are injurious. But great difficulties present themselves when an estimate is attempted to be made, in a similar way, of the moral and intellectual qualities of man, founded on mental manifestations alone, without reference to the cerebral development of the individuals observed. Mons. Quetelet, for example, in pursuing his inquiries into the development of the moral and intellectual qualities of man, presents Tables of the number of plays

¹ Paris, 1832.

² Paris, 1835.

of the first rank produced by authors of different ages in France and in England; Tables of the numbers of insane in relation to the population in several countries of Europe; Tables of the numbers of suicides; of men who have fallen in duels; and of criminals. He exhibits also in his Tables the influence of Education, of Professions, of Seasons, of Climates, and of Sex, on the tendency to crime. These researches are very valuable as means of establishing the existence of moral *facts*; and should lead subsequently to the investigation of the causes from which they originate: Until the causes are brought to light, the facts are insufficient to lead to practical results.

The following Table represents the number of Insane in relation to the whole population in several countries in Europe.

Countries.	Population.	Insane.	Numbers of the Population to each Insane.
Norway,	1,051,318	1,900	551
England,	12,700,000	16,222	783
Wales,	817,148	896	911
Scotland (1825),	2,093,454	3,652	573
New York (1821),	1,606,458	2,240	721
France (approximation),	30,000,000	30,000	1,000

"In Norway," says M. Quetelet, "the Idiots constitute one-third of the total number of the Insane, and one-half in Scotland and Wales. It is the great number of Idiots which renders the number of Insane in Scotland so large compared with the number in England. It is generally observed that in the mountains there are more Idiots than in the plains; and in plains devoted to agriculture there are more Idiots than in cities. In France and New York the number of Idiots is inconsiderable.

The advantage of knowing these facts is indisputable, but

we must go farther. In order to diminish the number of Idiots, we must discover the causes which produce the condition of brain of which idiocy is the outward symptom. The superabundance of Idiots in Norway and Scotland, for instance, may be supposed to be owing to a variety of causes : —1st, To the coldness and dampness of the climate. The remedy for this would be draining and improving the soil, building warmer houses, and providing better clothing for the people. Or, 2^{dly}, To the imperfect nourishment of the people. To remove this cause, we should prescribe the introduction of capital and industry. Or, 3^{dly}, To the intermarriages of near relations for successive generations, arising from a thin population scattered over a great extent of territory. To remedy this evil, instruction of the people in the functions and laws of health of the brain would be necessary, with the inculcation of the duty of their extending the sphere of their alliances. Railroads and steam-boats, by extending the circle of social intercourse, may tend to remove this cause.

That the third is probably one great cause of the evil, may be inferred from the following facts. Mr Brown, factor to the Duke of Hamilton, who had charge, for a number of years, of several of the smaller islands lying on the west coast of Scotland, told me, that he found by a census, that the number of idiots, in proportion to the total population, was greater in the islands than in the mainland, which he attributed to intermarriages of near relations, resulting from their insular situation. Secondly, Among the royal, noble, and aristocratical families of Europe, who frequently marry near relations, idiots are generally said to be more numerous in proportion to their total numbers than among persons in the humbler ranks of life. Thirdly, The inhabitants of cities have a wider range of choice, and in general are less giving to marrying with blood-relations than the inhabitants of the country ; and the fact that fewer idiots are produced among them, supports the principle here contended for. It is not enough, therefore, for practical purposes, to know the

proportion of idiots to the general population. We must discover the causes of idiocy before they can be abated ; and as the brain is the organ of the mind, every one of them will be found to affect directly or indirectly its size or its condition. In addition to these statistical tables, we want facts relative to the size and condition of the brain in the insane, and statements of all causes, physical and moral, which are known to act injuriously on its development and activity.

The Statistics of Crime have been treated in great detail by the authors before named. Mons. Quetelet presents us with the following Table relative to crime in France :—

Years.	Accused, and brought personally before the Tribunals.	Condemned.	Number of Inhabitants for each person accused.	Number condemned out of each 100 accused.	Accused of Crime		Proportion.
					against the person.	against property.	
1826,	6988	4348	4457	62	1907	5081	2.7
1827,	6929	4236	4593	61	1911	5018	2.6
1828,	7396	4551	4307	61	1844	5552	3.0
1829,	7373	4475	4321	61	1791	5582	3.1
Total,	28,686	17,610	4463	61	7453	21,233	

“ Thus,” says Mons. Quetelet, “ although we do not yet possess the statistical returns for 1830, it is highly probable that we shall find for that year also 1 person accused out of about every 4463 inhabitants, and 61 condemned out of each 100 accused. This probability becomes less for 1831, and less for the succeeding years. We are in the same condition for estimating by the results of the past, the facts which we shall see realized in the future. This possibility of assigning beforehand, the number of the accused and condemned which should occur in a country, is calculated to lead to serious reflections, since it involves the fate of several thousands of human beings, who are impelled, as it were, by an irresistible

necessity, to the bars of the tribunals, and towards the sentences of condemnation which there await them. These conclusions flow directly from the principle, already so often stated in this work, that effects are in proportion to their causes, and that the effects remain the same if the causes which have produced them do not vary."¹

In the section entitled, "On the influence of Instruction, of Professions, and of Climate, on the tendency to Crime," Mons. Quetelet presents the following Table.²

Intellectual condition of the Accused.	1828 and 1829, Accused of Crimes		Number of crimes against property for one crime against the person.	1830 and 1831, Accused of Crimes		Number of crimes against property for one crime against the person.
	against the person.	against property.		against the person.	against property.	
Incapable of reading and writing, }	2072	6617	3.2	2134	6785	3.1
Capable of reading or writing imperfectly, }	1001	2804	2.8	1033	2840	2.8
Capable of reading and writing well, . . . }	400	1109	2.8	408	1047	2.6
Having received a superior education in this first degree, . . }	80	206	2.6	135 ¹	184	1.4
Total,	3553	10,736	3.0	3710	10,856	2.9
¹ The number of accused in this class is increased in consequence of political events, and of crimes against the State.						

Tables are also given in the same form for each department of France and Belgium, and Mons. Quetelet sums up the results in the following words :³—

"1. The greatest number of crimes against persons and

¹ *Sur L'Homme*, &c. tome ii. p. 168. ² *Lib. Cit.* tome ii. p. 176.

³ *Lib. Cit.* tome ii. p. 197.

property, take place in the departments which traverse or border on the Rhone, the Rhine, and the Seine, at least in their navigable portions.

"2. The smallest number of crimes against persons and property are committed in the central departments of France, in those which are situated in the west, towards the ocean, from the Lower Alps to the Channel, and those which traverse towards the north, the Somme, the Oise, and the Meuse.

"3. The shores of the Mediterranean and neighbouring departments shew, other things being equal, a more marked tendency towards crimes against the person, and the northern part of France towards crimes against property.

"After having established these facts, if we seek to mount up to the causes which produce them, we are at once arrested by numerous obstacles. Indeed, the causes which influence crimes are so numerous and so various, that it becomes almost impossible to assign to each its due degree of importance. It frequently happens, also, that causes which appeared highly influential, disappear before others, to which one scarcely dedicated a thought at first. I have particularly experienced this in actual researches. Perhaps I was too much pre-occupied with the influence generally allowed to education as a means of extinguishing the propensity to crime. It appears to me that the common error on this subject arises from the expectation of finding less crime in a country because more children in it are sent to school, or because a greater proportion of the common people are capable of reading and writing. Account should rather be taken of the extent of moral instruction; because frequently the education which is received in schools, affords only additional facilities for committing crime."¹ "Poverty, also, is generally regarded as leading to crime; nevertheless, the department *de la Creuse*, one of the poorest in France, is that which pre-

¹ "Mons. Guerry has arrived almost at the same time with me at similar conclusions, in his Essay 'Sur la Statistique Morale de la France,' p. 51," and he has expressed them nearly in the same terms. The results have been obtained also in England, in Germany, and in the United States.

sents, in every respect, the greatest morality. In like manner, in the Low Countries, the most moral province is that of Luxembourg, where the greatest poverty reigns. It is necessary, however, to define what is meant by the word Poverty,—which is used here in a sense that may be regarded as improper. A province is not poor because it contains less wealth than another, if its inhabitants, like those in Luxembourg, are sober and active.—If, by their labour, they succeed in providing securely for their wants, and satisfying their tastes (which are the more moderate in respect that inequality of fortune is less common, and offers fewer temptations), they may properly be regarded as enjoying a modest competence. Poverty makes itself felt in provinces where great riches are amassed, as in Flanders, Holland, the department of the Seine, &c., and above all in manufacturing countries, where, by the least political commotion, or obstruction in the usual outlets of commerce, thousands of individuals pass suddenly from a state of comfort to one of misery. The rapid transitions from one state to another give birth to crime; especially if the individuals who suffer are surrounded by objects of temptation, and find themselves excited by the constant spectacle of luxury, and of an inequality of fortune which drives them to despair.”

“It appears to me, that one of the first distinctions to be made in this study, is that of the *different races* of men who inhabit the country which we have under our consideration. It is, as we shall immediately see, of the highest importance, although it is not that which first presents itself to our observation.” These are wise and profound remarks, and I commend Mons. Quetelet for having directed attention to them, which he does by quoting the following passages from Malte Brun’s *Précis de la Géographie Universelle*, livre 159. “The population of France,” says Malte Brun, “belongs to three principal races: the *Celtic*, which constitutes nearly three-fifths of its inhabitants; the *Germanic*, which comprehends those of the ancient provinces of Flanders, of Alsace, and of a part of Lorraine; and the *Pelasgian* (named by Dr Spurzheim, the *Phenician*) spread in the neighbourhood of

the Mediterranean and in Corsica. Changes of manners, and the progress of civilization, may alter the character of a people, but may not change it entirely." Mons. Quetelet proceeds to remark, that if we cast our eyes over the chart representing crimes against the person, this distinction of races makes itself felt in a very remarkable manner. "We see that the Pelasgian race, *spread on the borders of the Mediterranean and in Corsica*, is particularly addicted to crimes against the person. Among the German race, which extends over Alsace, the Duchy of the Lower Rhine, part of Lorraine, and of the Low Countries, where the dense population and abundance of property afford more opportunities for committing crime, and where the general use of intoxicating liquors more frequently occasions excesses, there are generally a great number of crimes against both property and person. The Batavians and the Frisons, who also belong to the German race, are addicted particularly to crimes against property. Finally, the Celtic race appears to be the most moral of the three which we have considered, especially in regard to crimes against the person. It occupies the greater part of France, and the Walloon portion of Belgium. It appears, moreover, that frontier countries, where the races are intermixed, where there is generally more agitation, and where lines of custom-house officers are established, are the most liable to demoralization."

The differences in the tendency to crime observable in different races must have causes, and we are led by observation to believe, that the most important among these is development of brain. The influence of the brain on the mental dispositions is fundamental ; that is to say, it so far modifies the effect of external circumstances, that the real operation of these on the mental manifestations cannot be understood until the development of the brain of the individual exposed to them be comprehended. Individuals possessing a predominating development of the moral and intellectual organs, like Melancthon (vol. i. p. 141), or Eustache (p. 142), rise superior to circumstances. No condition could be more un-

favourable to virtuous conduct than that of Eustache, when he was a slave, associated with slaves engaged in a war of extermination against their masters; yet such was the preserving power of a high moral and intellectual organization, that he nobly discharged his duty to both belligerents, and triumphed over temptations which would have proved irresistible to a less favourably constituted brain. On the other hand, when the moral and intellectual organs are remarkably deficient, and those of the propensities predominate, no external circumstances, short of physical restraint, are sufficient to preserve the individual from vicious practices. The heads of Hare, vol. i. p. 141, and Gottfried, p. 142, are examples of this combination, and their lives shew an appetite for atrocious crime, which sought its own gratification in circumstances the most dissimilar. It is only on brains in which the three regions of propensity, sentiment, and intellect, are nearly equally balanced (of which Maxwell's head, vol. ii. p. 310, is a specimen), that external circumstances produce a powerful and decided influence. All inquiries into the development of the animal, moral, and intellectual faculties of nations, therefore, in which the influence of the brain is omitted, must necessarily be defective.

In making these remarks, I repeat that I am far from undervaluing the importance of the facts brought to light in the foregoing tables, even regarding them merely as facts apart from any opinions regarding their causes. To know the existence and magnitude of any evil is the first step towards the investigation and eventual removal of its causes; and the public is deeply indebted to statistical observers for presenting the phenomena of the moral world in tangible masses, measurable by figures, and capable of being generally understood.

The uniformity of results established by the researches of Mons. Quetelet and other enquirers, proves the existence of stable and uniform causes of mental phenomena; and instead of charging these authors, as some opponents have done with subverting the freedom of the human will and moral

responsibility, (as if they had *created* or *occasioned* the facts which they have only investigated and reported), the philosophic mind should direct its energies to the discovering of the causes, and to the removal of such of them as produce evil. Crime appears to me to stand in a similar relation to the mind that disease does to the body; it is the indication that the faculties of the individual, through original defect in his brain, or from exposure to unfavourable external influences, or from both combined, have departed from the healthy condition; and as we endeavour to cure disease by removing its causes, so should we try to diminish crime by a similar mode of proceeding. That crime arises from steadily operating causes which lie far deeper than the voluntary or fitful aberrations of individual minds, seems to be established beyond dispute. The next step, therefore, should be to unfold these causes, and to remove them. Defective cerebral organization, want of moral and religious training and intellectual instruction, with defective social institutions, will probably be found to constitute the chief sources whence criminal actions spring. While these are permitted to continue, punishment of individual criminals will fail in putting an end to crime. The representation by Sir George S. Mackenzie to Lord Glenelg, Secretary for the Colonies, printed in the appendix, will shew one mode in which Phrenology may be made subservient to the proper treatment of criminals.¹

¹ An attempt has been made by Dr Kohnst of Edinburgh, in his "Ethnographic Map of Europe, or the different nations of Europe traced according to Race, Language, Religion, and Form of Government, 2d Edit., Edinburgh, 1843, W. & A. K. Johnston," to give a synoptical view of the different races inhabiting Europe. They are pointed out on the map by different colours, the *Celtic* by *blue*, the *Teutonic* by *yellow*, the *Slavonian* by *red*, the *Finnian* by *brown*, and the *Mongolian* by *purple*. The notes, which are added, consist of three sheets of printed matter, and are classed under eight different heads, all treating on the *physiological*, *moral*, and *intellectual* character of the different races. The work embodies in a brief space a vast amount of interesting and accurate information, and will be found to be a valuable assistant to the student of the History and Institutions of Europe.

COMPARATIVE PHRENOLOGY.

In vol. i. p. 160, I stated that, "in comparing the brains of the lower animals with the human brain, the Phrenologist looks solely for the reflected light of analogy to guide him in his researches, and never founds a direct argument in favour of the functions of the different parts of the human brain upon any facts observed in regard to the lower animals." I proceed to observe that, in comparing the bones, muscles, and bloodvessels of man with those of animals, we find a general analogy prevailing, and the nearer an animal approaches to the human race in physical and mental condition and power, the more complete is the analogy between the structure and functions of particular organs in each, and the more numerous also are the organs in which this resemblance presents itself; nor is any exception to this rule perceived in the nervous system. At certain points, however, the analogies fail, and good grounds may be assigned for this fact. Many persons reason on analogies between man and the lower animals, as if they imagined a man and a monkey to stand in the same relation to each other, as a large horse does to a diminutive pony; they seem to expect that all the organs, or at least all the parts of the brain, should be moulded in the same form, and occupy the same relative positions, and differ only in size. But this is erroneous. A monkey is not a man made down into an inferior animal; it is a creature of a distinct species. In so far as it possesses functions of mind and body similar to those of the human race, we may reasonably expect it to present organs of *similar* characters; I say *similar*, and not perfect counter parts in the strictest sense of the word; because the animal being a distinct creature, its organs will be *modified* to suit its particular condition. The non-professional reader will be enabled to appreciate the force of this remark by a single illustration. The function of a clock is to measure

time, and that of a watch is the same : Is there any close analogy between their structures ? If the two machines were presented to a person ignorant of mechanics, and unacquainted with the uses of the clock and watch, it is probable that he might examine them in a general way, and declare that there was but a slight resemblance between them : But if we were to submit them to the examination of a philosophical watchmaker, he would declare that the analogies were numerous and striking ; he could point out wheels and pinions in each in which the resemblance was complete ; and he could add, that even between the weights and pendulum of the clock, and the mainspring and balance-wheel of the watch, a striking analogy is discernible by reflecting intellect, although to the eye their *forms* and appearances were widely different. He would draw these conclusions in consequence of his knowing accurately the *structure* and *use* of *every part* in *each* machine. It may well be conceived, that an observer, ignorant of all these particulars, might be blind to the analogies, not because they did not exist, but because, owing to his want of knowledge, he was not in a condition to perceive them. The watchmaker could without hesitation declare that the two machines acted on similar principles, and accomplish similar ends by similar means ; and that the differences between them bear an obvious relation to the different situations in which they are intended to act—the one stationary and perpendicular, the other subject to locomotion and to all varieties of position.

Keeping in view, then, that the inferior animals are not human beings made down by the mere omission of some organs, and the diminution of others, but distinct and independent creatures, whose parts, in so far as they resemble those of man, are modified to suit their own condition, and in whom special organs (wings and fins, for instance) exist, of which man is destitute,—I observe that the Phrenologist studies, *in each class* of animals, the structure of the brain and the manifestations of the mind. He selects, as subjects of observation, animals whose actions and brains he has the

best opportunities of scrutinizing—individuals, also, in mature life and in full health. He compares *in each* the power of manifesting *particular faculties* with the size of *particular portions* of the brain ; and it is only when he has found, that in all cases (disease being absent) a large development of a particular part is accompanied with great power of manifesting a particular faculty, and *vice versa*, that he draws the inference that the part observed is the organ of that special power.

In applying this principle in the case of the lower animals, the process of observation must be the same as in man. It will not suffice to take up the brain of a sheep, a tiger, a fish, and a snake, and *de plano* compare them with the human brain, and jump to the conclusion, that there are, or are not, relations between their powers of manifesting the *human faculties*, and the size of corresponding parts of their brains. Before analogies in regard to particular qualities can be decided on, the student must know *both of the things which he compares*, for then only can he be in a condition to judge whether analogies do or do not exist. The author of the article "Phrenology," in the "Penny Cyclopædia," in urging objections against our views, overlooks this principle: He says,—“ Yet this is so far from being the case, that phrenologists are compelled to rest their opinions almost exclusively on evidence derived from the comparison of the brains of different individuals of the same species, and *to suppose* that, though many faculties are the same in man and the lower animals, yet in each species *they are manifested in some peculiar form and structure* NOT ADMITTING OF COMPARISON *with those of man.*” The “supposition” here ascribed to phrenologists is not entertained by them: they do not maintain that “the form and structure” of the brains of animals “do not admit of comparison with those of man.” They have not affirmed that every brain possesses the same number of parts or organs, nor that all brains are alike perfect in their organization ; assumptions which the objection of the Cyclopædist (without a shadow of reason)

implies that they have made, or at least are bound to make. What they do affirm is—that the organic formation, be it ever so simple, which supplies the powers of perception, comparison, feeling, willing, and moving, *is* a brain, whether it be situated in the animal's head, back, belly, or tail, and whether it be round or square. But before the analogies in structure and functions between it and the human brain can be logically predicated, we must know the structure and functions of *both*. The correct statement, therefore, of their doctrine is,—that they insist on the necessity of understanding *both* of the things compared as an indispensable requisite to drawing sound inferences as to the existence or non-existence of analogies between them ; of studying *each organ* in *each class* of animals by itself, and *then* comparing them in order to decide on their analogies. They object to comparing the *known* with the *unknown*, which is what the Cyclopædist insists on doing. Dr Vimont, under the head of “Cranioscopy of animals,” says, “We should never commence the application of the principles of Phrenology on the crania of individuals belonging to different classes and orders of animals. They should always be on the crania of animals of the same species, and especially on animals the produce of the same parents. Every one who will take the trouble to repeat my experiments, by rearing before his own eyes, and during a long period, a large number of animals, and noting with care their most prominent faculties, will be qualified to make valuable cranioscopic observations on the chief vertebrated animals.” After studying the faculties manifested by individuals of each class, and ascertaining the precise locality, appearance, and size, of the organ by means of which each faculty is manifested, and doing the same in man, the observer will be in a condition to judge of the analogies between them ; *but not before*.

Dr Vimont has followed this course, and found numerous and striking analogies. The faculties, for instance, of Ama-

tiveness, Philoprogenitiveness, Combateness, Destructiveness, Cautiousness, and others, not only are susceptible of comparison in man and the lower animals, but have been successfully observed in both ; then they have been compared ; and the analogies equally in the faculties and organs have been pointed out. Dr Kennedy, of Ashby-de-la-Zouch, communicated to me the following fact, of which he was a witness, and which may serve as one illustration of Dr Spurzheim's mode of studying the brains and faculties of the lower animals. " I spent a few days at Mr Strutt's of Belper, in Derbyshire, when Dr and Mrs Spurzheim were there on a visit. We used to walk a good deal over the lawn and shrubbery, where we had frequent opportunities of making observations on Mrs Strutt's pet family of tame pigeons, which was numerous, and contained many varieties both British and foreign. Among them was a very beautiful one, to which our attention was always drawn by the extraordinary and elegant manifestation of an exorbitant Self-Esteem, the natural language of this organ being most prominently apparent. So much had this bird become an object of interest, that the conversation was often interrupted by the exclamation, ' Here comes Self-Esteem ! ' Well, by some accident poor Self-Esteem received an injury which ended in his death, and thus afforded us the advantage of a necrotomical inspection. Dr Spurzheim made a careful dissection of the brain, and clearly exhibited the organ which he had previously ascertained to be that of Self-Esteem, in a state of enormous preponderance in size relatively to the other cerebral parts. The Doctor proposed making a preparation of this brain in alcohol, and, if my recollections be correct, Mrs Spurzheim made a drawing of it." The Cyclopædist's objection is, that phrenologists do not maintain that, after studying man, they are prepared to demonstrate direct analogies running through the orders, genera, and species of all the inferior animals, *without studying each of them by*

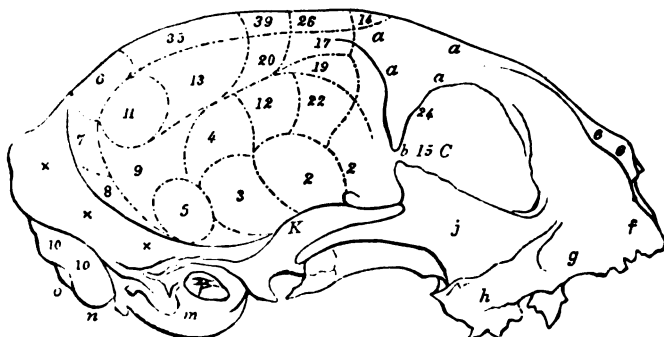
itself. He objects that we do not regard a horse, an ass, a haddock, a frog, and a flea, *as merely men made down*; that is to say, as manifesting precisely human faculties, by human organs, only omitting those which are unnecessary to their condition! In no other sense have his words any rational meaning.

The real phrenological question is, Whether, in each species of animals, the size of each organ bears to that of the rest a proportion corresponding to the energy of each faculty in relation to the rest. No philosophical phrenologist compares the absolute size of the organs in one species with their absolute size in another, because to do so would be to transgress a very obvious rule of philosophy. The same cause, *in the same circumstances*, produces the same effects. When we apply this rule to Phrenology, we say that the same extent of size in an organ, *in the same circumstances*—*i. e.* in individuals of the same species, age, health, and constitution,—will produce the same degree of energy of function. But the Cyclopædist (correcting our philosophy) seems to expect that the same extent of size in the cerebellum, *in different circumstances*,—*i. e.* in individuals of every order, genus, and species, from man down to reptiles,—should produce the *same* energy of manifestations. Unless we hold this to be a philosophical principle, the comparison of the *absolute size* of the cerebellum (the mere size without regard to other circumstances) in the different species of animals is a mere waste of labour, which can lead to no result. Such a principle of comparison is condemned by the rules acknowledged by all cultivators of inductive science.

That the phrenologists prosecute their researches by direct observations on individuals in each species is matter of public record. Dr Vimont's work on Comparative Phrenology is regarded as the highest authority; and so far from founding his views on mere analogies, he has been led, for instance, by direct observations, to the opinion, that "the faculty of Destructiveness has been bestowed on vertebrated animals as well as on man, as a species of auxiliary to aid their other faculties.

The beaver and the squirrel cut and tear in pieces the bark, leaves, and branches of trees, to construct a cabin or a nest. The marmot gnaws a great quantity of herbs to make a warm bed in winter. Many birds could not construct a nest unless they tore in pieces many vegetable substances. The whole lives of herbivorous animals are employed in cutting, dividing, and destroying an immeasurable quantity of vegetable matter. When Gall and Spurzheim cite, in support of their observations, carnivorous and granivorous birds, as examples of the presence of the propensity to destroy in the one case, and the absence of it in the other, they commit a double error. Many granivorous birds are very fond of animal substances. I have seen fowls run with avidity to flesh, even that of a young chicken which had been cut in pieces. I have seen the same birds quit grain in order to eat shell-fish which had been thrown to them. It is quite certain that there exists a great difference between the skulls and brains of birds which live exclusively on animal substances, and those whose principal food is vegetables, a difference which Dr Gall has not correctly indicated, as I shall demonstrate; but, in my opinion, it is to be ascribed to the difference in the activity of the tendency to destroy in the different species, and not to its total absence in one of them." These remarks, be they well or ill founded in themselves, shew that Dr Vimont rests his opinions on direct observations made on the different races of animals, and not on loose analogies. He has observed the energy of particular mental powers in individuals of each species, and compared this power with the size of particular parts of the brain in each, and by this means assigned special localities to different faculties, and special functions to different parts of the brain, in the different races. The positions of the organs, as well as the size of each in relation to the others, he finds to be modified in each species. He gives, for example, in Figure 1., the skull of a full-grown cat, and delineates the organs on it as follows:

Fig. 1. FULL-GROWN CAT.



No. 2. Organ of Alimentiveness.

3. Destructiveness.

4. Secretiveness.

5. Combativeness.

6. Inhabiteness.

7. Concentrativeness.

8. Attachment for life.

9. Adhesiveness.

10. 10. And the asterisks, Amativeness.

11. Philoprogenitiveness.

No. 12. Acquisitiveness.

13. Cautiousness.

14. Individuality.

17. Distance.

19. Resistance (Weight).

20. Locality.

22. Order.

26. Eventuality.

35. Perseverance (Firmness).

39. Mildness.

In fig. 2. he represents the skull of a spaniel bitch, with the organs marked; the numbers referring to the same organs, with the addition of the following not indicated in the cat:

15. Form.

27. Constructiveness.

30. Comparison.

Fig. 2. SPANIEL BITCH.¹¹ The scale of this figure is reduced one-half.

In fig. 3. he represents the skull of a crow with numbers indicating the seat of the cerebral organs.

Fig. 3. Crow.



The numbers refer to the same organs as in figures 1. and 2., with the addition of the following:—

- No. 16. Size.
- 18. Geometrical Sense.
- 23. Time.
- 28. Musical talent.
- 29. Imitation.

I again remark, that it is of small importance to my present argument whether the organs in these figures have all been correctly indicated or not; I adduce the drawings on this occasion only to prove that the phrenological mode of

studying the functions of different parts of the brain in man and animals, by means of observations made on known individuals in each species by itself, is actually followed. I have already demonstrated that it is the only *philosophical* method. Conclusions regarding the presence or absence of analogies between the brains of different species drawn *after* ascertaining, in this manner, the existence, the localities, and the functions of the organs in each, *may* be sound; but all conclusions on the same points drawn *before* ascertaining these particulars in each, are entitled to no consideration whatever.

For a detailed account of what has been accomplished in this branch of Phrenology, I must refer the reader to Dr Vimont's valuable work, already so frequently referred to, "*Traité de Phrenologie*," and to the *Phrenological Journal*, vol. xiv. pp. 169 and 262, in which I have endeavoured to answer the objections against Phrenology founded on comparative anatomy.

MESMERIC PHRENOLOGY.

Various phrenologists in England and the United States of America have applied Mesmerism to the individual organs in the brain, and have reported that the organs thus excited became active, and manifested each its proper faculty in words, gestures, and actions, independently of the will of the patient. I have not seen any of these experiments, but I have read the reports of many of them, and received letters from persons (in whose shrewdness, intelligence, and good faith I have confidence) who have witnessed them, and who assure me of their truth. In the words, therefore, of one of my esteemed correspondents, I acknowledge that "the impression left with me is, that it is more difficult to believe that all the parties are deceived or deceivers, than to believe that some of the alleged facts are natural facts."

There appears to be no absurdity in the supposition, that the nervous system of one individual may influence that of another through other channels than the senses. Many of the phenomena reported by magnetisers are not more incredible than similar ones the result of disease. In the present work (vol. ii. p. 202, 224) well authenticated cases of divided consciousness, and of manifestations of the faculties in singular conditions, have been given; and when we divest the Mesmeric cases of some of the spectators' inferences, which are often largely incorporated in the reports as parts of the facts,—and reject some things which, from being at variance with established truth, do appear to be incredible,—the remaining alleged facts are not so contradictory to experience as many persons suppose. The generation of mental excitement in a large assembly, when addressed by a powerful orator, is equally unaccountable as the communication of Mesmeric influence. *Why* should more movements in the air, produced by the speaker's voice, and transmitted, through a series of undulations, to the tympanum of the

hearer, excite the passions to the highest pitch of energy ? This is as great an enigma as that the brain should be excited by the transmission of some unknown influence by Mesmeric operations. The orator would in vain attempt to produce the same effect by his eloquence on one individual (unless by nature highly excitable) as on a mass ; and why should numbers increase the effect, seeing that, during the impassioned periods of the discourse, the individuals composing an audience neither speak to, nor look at, each other, but each hangs with concentrated attention on the speaker ? That some influence is generated by the mass, which extends from individual to individual, and increases the excitement of each, and which is also radiated back from their countenances to the speaker, and has the effect of augmenting the intensity of his mental action, is undeniable ; yet this, if not identical with, bears such a strong similarity to, the alleged Mesmeric *aura*, that it is difficult to distinguish between them. I am very much disposed, therefore, to adopt the views of the correspondent already alluded to, who expresses his opinions in the following words :—

“ Though unexpected,” says he, “ the alleged facts of Mesmerism rather go to fill up an acknowledged void in our acquaintance with nature’s operations, to-wit, the present inability of explaining that mental influence which human beings (animals generally, indeed) exert on each other by a mere word, or look, or gesture, even without physical touch. This influence is an admitted fact, because long a familiar fact ; yet, if we come to seek an explanation for it, it is as difficult to give a satisfactory one, as it is difficult to explain the facts of the Mesmerists ; and thus, to my thinking, that influence itself seems equally worthy of wonder as are many of the alleged and laughed at facts of the Mesmerists. The two sets of facts appear much on a par—except that one is familiar, the other strange. And, moreover, they support, rather than antagonize, each other.

“ Going so far as to admit that a decided influence *can* be

exerted by a Mesmerist over the nervous system of others, by certain processes whose *modus operandi* on the patient is yet unknown,—it does not appear a very wide step (and the step is onward, not aside from the course) to allow that he may influence a *part* of that system more than the rest. On this ground, when reading Dr Elliotson's report of his experiments on particular organs of the brain, I did not feel disposed to reject all the results as impossibilities, or as things in their own nature too marvellous for trust.

“ I found, indeed, considerable difficulty in believing that he (or any operator) could so exactly excite given organs without affecting others. Yet, on his side, the argument must be advanced and allowed, that when we look at the close connexion of the phrenological organs of the brain, the community of their vessels, and the inability of detecting any line to distinguish organs from each other,—when we look at these apparent obstacles, it is as difficult to conceive the *spontaneous* or natural separate and independent action of the organs, as to conceive their separate excitation by a Mesmerist. In the one case, we see functional manifestation forcing us to the inference that this separate action does occur spontaneously, in answer to internal or external influence. And if, in the other case, the like functional manifestation follows the artificial or Mesmeric influence, how can we deny the connexion, and the possibility of the operator effecting it ?

“ So far, then, the alleged facts of the Mesmeric Phrenologists seem to correspond with other acknowledged facts : that is, they present no contradiction to them, and even so much resemble the other acknowledged facts as to admit of being classed with them, and perhaps lead one step farther towards some generalization which may hereafter be received as a law of nature.

“ But, when we come to the asserted excitation of organs of insanity and childishness, we are compelled to pause, and suspect that the spectators have reported their own mental constructions put upon external facts, rather than the mere

facts. The existence of such organs should be first established, or at least made probable ; for their existence, as it seems to me, would be in contradiction of much past experience, which goes to shew that insanity and childishness are not primitive and distinct functions of special organs, but states of manifestation."

In examining the evidence of facts alleged to exist, it is, in the general case, unnecessary to institute an inquiry into the capacity and other mental characteristics of the individuals who report them, because we are bound to verify the facts themselves by a direct appeal to nature. But there is a striking peculiarity in the evidence offered in support of Mesmerism. Its professors state that some individuals are naturally incapable of mesmerizing, and that others are unsusceptible of Mesmeric influence. It is not in the power of every one, therefore, to ascertain the truth of the facts by direct investigation ; and consequently many persons must form their opinions on the faith of testimony alone. The value of evidence, however, which cannot be tested by every enquirer, must necessarily depend much on the mental character of the individual who reports it ; and therefore, to enable us to form a sound judgment on the subject, we should be informed concerning the age, sex, temperament, education, sphere of life, and cerebral development of both the magnetizer and his subject. This information appears to me to be the more necessary, because I conversed with an educated individual, who, in perfect sincerity, affirmed that he holds communication with supernatural beings ; and I have been informed that a very zealous advocate of Mesmeric Phrenology, in the United States, assures his friends, that, in his natural state, he holds frequent converse with the spirits of his deceased wife and child. I have observed very large organs of Wonder in both of these individuals ; and it is an ascertained fact (see vol. i. p. 452-464), that a predominating development of this organ leads to belief in the real outward existence of objects which to other individuals appear to be merely impressions existing in the mind of the

person so gifted himself. Many of the advocates and witnesses for Mesmerism, who are known to me, possess large organs of Wonder, and, without entertaining the slightest suspicion of their perfect good faith, I cannot help suspecting, that, through the medium of this organ, the extraordinary nature of the phenomena recommends the phenomena themselves to their acceptance, with slight investigation; and renders them less careful, both as observers and reporters, than an inquirer not labouring under a similar influence would desire. In this way alone can I account for the looseness and imperfection of the reports; some of which, without any attempt at explanation, ascribe, to special organs, phenomena which to ordinary reason appear to be negations, or the results of states of the whole brain, or of particular parts of it which have ascertained functions. In America, for instance, an organ of "Insanity" is reported to have been discovered; which seems analogous to the discovery of an organ of asthma or of indigestion. The information before mentioned is desirable also, as affording the means of discovering whether any constant relation exists between particular temperaments and particular developments of the cerebral organs, and the capability of mesmerizing and of being mesmerized.

In vol. xv. of the Phrenological Journal, pages 188, 349, 304, 314, 354, 317, 326, 339, 365, 373, cases are reported, to which I beg leave to refer the reader; and also to an instructive paper on Mesmeric Phrenology, by Dr Boardman of New York, in vol. xvi. (April 1843.)

An idea insisted on by some Mesmeric phrenologists, that the phrenological organs, as at present delineated, are groups, is not destitute of support from other known facts. Mr James Milne, for instance (see vol. ii. p. 57), although incapable of distinguishing red from green, discriminates easily blues and yellows. Some individuals have a great talent for learning the spirit of languages, and very little for learning mere words, and *vice versa* (see vol. ii. p. 131). The first of these facts seems to indicate that there are

distinct fibres in the organ of Colouring for distinguishing different colours, because the same organ cannot be both capable and incapable of performing its proper functions at the same time. A different explanation has been given of the second fact ; but much obscurity still pervades it, and Dr Gall's opinion that there are two organs of Language may be correct. The supposition that the organs are compound, would serve also in some measure to explain the modified manifestations apparently resulting from the same organ, and the consequent difficulty of finding a common name inclusive of all *kinds* as well as *degrees* of manifestation from the now so-called same organ. It is undeniable that the farther the subdivisions are carried, the greater will become the difficulty of proof by physical development ; but in studying Nature we are bound to follow wherever she leads.

Having, as already mentioned, no personal knowledge of the subject, I have hazarded these remarks with the view merely of recommending experiments, and inculcating accuracy in observation and reporting.

OBJECTIONS TO PHRENOLOGY CONSIDERED.

HAVING now considered the elements of Phrenology, I shall notice briefly some objections which have been urged against it. These shall be given, as nearly as possible, in the words of actual opponents, and an answer shall be subjoined.

Objection.—The idea of ascribing different faculties to different parts of the brain is not new. Many authors did so before Dr Gall ; but their systems have fallen into disrepute, which proves that the doctrine is not true.

Answer.—Dr Gall himself has called attention to the fact, that the idea alluded to is very ancient : he has given a history of previous opinions concerning the functions of the brain ; and shewn that different functions have been attributed to different parts of it for centuries past, while he has assigned reasons for these ideas falling into oblivion. Dr Spurzheim in his works has done the same ; and in the *Phrenological Journal*, No. VII. Art. 8, “An Historical Notice of early Opinions concerning the Brain” is given, accompanied with a plate of the head, shewing it marked out into different organs in 1562 : it is copied in vol. i. p. 33 of this work. The difference, however, between the method of investigation practised by Dr Gall, and that followed by prior authors, is so great, that the differences in the results are accounted for. Former speculators assigned to certain mental faculties local situations in the brain, on account of the supposed aptitude of the place to the faculty. Common sense, for example, was placed in the forehead, because it was near the eyes and nose ; while memory was lodged in the cerebellum, because it lay like a storehouse behind, to receive and accommodate all kinds of knowledge, till required to be brought forth for use. This was not philosophy. It was the human imagination constructing man, instead of the intellect ob-

serving how the Creator had constituted him. Dr Gall acted on different principles. He did not assume any mental faculties, and neither did he assign to them habitations in the brain according to his own fancy. On the contrary, he *observed, first*, the manifestations of mental talents and disposition ; and, *secondly*, the form of brain which accompanied each of these when strong and weak. He simply reported what Nature had done. There is the same difference between his method of proceeding and that of prior authors, as between those of Des Cartes and Newton ; and hence it is equally intelligible why he should have succeeded in discovering truth, while they only invented ingenious errors.

Objection.—It is admitted by Phrenologists, that the functions of some parts of the brain are undiscovered ; when these are found out, they may give a new view of the uses of the parts to which certain functions are now ascribed, and therefore no certain conclusion can be drawn on the subject in the present state of phrenological observations, even supposing them to be all correct.

Answer.—Each organ will always manifest its own faculty, whatever discoveries may be made in regard to other organs. The direction may be modified, but the function will remain unaltered. See vol. ii. p. 295–6.

Objection —It is ridiculous to suppose that the mind has thirty-five faculties ; why not fifty-five ? or an hundred and five ? Besides, the phrenologists have been continually altering the number.

Answer.—As well may it be said to be absurd, that we should possess exactly five senses ; why not ten or fifteen ? The phrenologists deny all responsibility for the number of the faculties. They admit neither fewer nor a greater number, than they find manifested in nature. Besides, authors on mental philosophy admit as many, and some more, faculties than the phrenologists. Lord Kames, for example, admits twenty of the phrenological faculties ; while Mr

Dugald Stewart, in his system, ascribes more faculties to the mind than are enumerated in the phrenological works.¹ The increase of the number of the phrenological faculties is easily accounted for. It has invariably been stated, that the functions of certain portions of the brain remain to be discovered ; and, in proportion as this discovery proceeds, the list of mental powers will necessarily be augmented.

Objection.—"On opening the skull and examining the brain towards the surface, where the organs are said to be situated, it seems to require no small share of creative fancy, to see any thing more than a number of almost similar convolutions, all composed of cineritious and medullary substance, very nearly in the same proportions, and all exhibiting as little difference in their form and structure, as the convolutions of the intestine." "No phrenologist has ever yet observed the supposed line of distinction between them ; and no phrenologist, therefore, has ventured, in the course of his dissections, to divide a hemisphere of the brain accurately into any such number of well-marked and specific organs."

This objection was urged by the late Dr John Barclay, and is answered at full length by Dr A. Combe, in the *Phrenological Transactions*. A summary only of his observations can be introduced here. *First*, Although the objection were literally true, it is not relevant ; because it is an admitted principle of physiology, that the form and structure of an organ are not of themselves sufficient to reveal its functions ; no man who saw an eye, an ear, or a nostril, for the first time (supposing it were possible for a man to be so situated), could, merely by looking at it, infer its uses. The most expert anatomists had looked frequently and long upon a bundle of nervous fibres, enclosed in a common sheath, without discovering that one set of them was the organ of voluntary motion, and another that of feeling ; on the contrary, from their similarity of appearance, these nerves had,

¹ See answer to Mr Jeffrey in *Phrenological Journal*, vol. iv. p. 30.

for ages, been regarded as possessing similar functions. Nevertheless, Sir C. Bell and Magendie have demonstrated, by experiment, that they possess the distinct functions of feeling and motion. These discoveries are discussed in vol. i. p. 91. It may therefore competently be proved, by observation, that different parts of the brain have distinct functions, although it were true that no difference of structure could be perceived. It is now generally admitted, that the anterior column of the spinal marrow subserves motion, and the posterior, feeling, although the precise line of demarcation between them has not been discovered.

But, *2dly*, it is not the fact that difference of appearance is not discoverable in the convolutions. It is easy to distinguish the anterior, the middle, and posterior lobes of the human brain from each other; and, were they shewn separately to a skilful phrenological anatomist, he would not mistake one for the other. The mental manifestations are so different; according as one or other of these lobes predominates in size, that there is, even in this case, ample room for establishing the fundamental proposition, that different faculties are connected with different parts of the brain. Farther, many of the organs differ so decidedly in appearance, that they could be pointed out by it alone. Dr Spurzheim says, that he "should never confound the organ of *Amativeness* with that of *Philoprogenitiveness*; or *Philoprogenitiveness* with that of *Secretiveness*; or the organ of the *desire to acquire* with that of *Benevolence* or *Veneration*;" and, after having seen Dr Spurzheim's dissections of the brain, I bear my humble testimony to the truth of this assertion. Even an ordinary observer, who takes a few good casts of the brain in his hand, may satisfy himself that the anterior lobe, for example, presents convolutions different in appearance, direction, and size, from those of the middle lobe; while the latter, towards the coronal surface, presents convolutions differing in appearance and direction from those of the posterior lobe; and, above all, the cerebellum, or organ of *Amativeness*, is not only widely different in structure, but is

separated by a strong membrane from all the other organs, and can never be mistaken for any of them. Difference of appearance, therefore, being absolutely demonstrable, there is much more reason on the side of the phrenologists for presuming difference of function, than on that of the opponents for maintaining unity.

3dly, It is admitted that strong lines of demarcation between the organs are not perceived in the brain ; but those persons who have either seen Dr Spurzheim dissect the brain, or have attended minutely to its impressions on the skull, will support me in testifying, that the *forms* of the organs are distinguishable, and that the mapping out is founded in nature. To bring this to the test, the student has only to observe the appearance of any particular organ in a state of large development, the surrounding organs being small ; the *form* will then be distinctly visible. This subject is discussed at more length in vol. i. from p. 148 to p. 160.

Objection.—All parts of the brain have been injured or destroyed without the mental faculties being affected.

Answer.—The assertion is denied : There is no philosophical evidence for it. The subject is discussed at length by Dr A. Combe, in the Phrenological Transactions. The objection is now generally abandoned by persons who have considered the cases, with the answers to them.

Objection.—*Post-mortem* examinations do not shew diseased structure in the brain from Insanity.

Answer.—They frequently do so ; and when they do not, our ignorance of the appearances in health, and our inability to discriminate minute changes of structure, are the causes of our perceiving nothing different from the healthy state. Professor Christison observes, that “ Some poisons operate by irritating, destroying, or corroding the organ ; while others neither corrode nor irritate, but make a peculiar impression on the sentient extremities of the nerves,

unaccompanied by any *visible* change of structure." Similar observations may be applied to the appearances of the brain in Insanity. If the disease has been merely *functional*, no *structural* change may be discernible.

Objection.—The world has gone on well enough with the philosophy of mind it already possesses, which, besides, is consecrated by great and venerable names, while Phrenology has neither symmetry of structure, beauty of arrangement, nor the suffrages of the learned to recommend it. Its votaries are all third-rate men—persons without scientific or philosophical reputations. They are not entitled, therefore, to challenge the regard of those who have higher studies to occupy their attention.

Answer.—The world has *not* gone on well enough without Phrenology. A fierce and general conflict of opinions is maintained on many important subjects connected with mind, which cannot be satisfactorily settled till the true philosophy of man shall be discovered and understood. Criminal legislation, education and social institutions, rest in many respects on imperfect foundations ; and at the present moment, mankind have great need of a sound, practical, and rational system of mental philosophy. Moreover, Phrenology being a new science it follows that men who possess reputation in physiology or mental philosophy appear to lose rather than gain renown, when they confess their ignorance of the functions of the brain and the philosophy of mind, which is a necessary prelude to their adoption of Phrenology ; and the subject does not lie directly in the department of other scientific men. In this manner it happens, oddly enough, that those who are most directly called upon by their situation to examine the science, are precisely those to whom its triumph would prove most humiliating. Locke humorously observes on a similar occasion, " Would it not be an insufferable thing for a learned professor, and that which his scarlet would blush at, to have his authority of forty years' standing, wrought out of hard rock, Greek and Latin, with no small expense

of time and candle, and confirmed by general tradition and a reverend beard, in an instant overturned by an upstart novelist? Can any one expect that he should be made to confess, that what he taught his scholars thirty years ago was all error and mistake, and that he sold them hard words and ignorance at a very dear rate? What probabilities, I say, are sufficient to prevail in such a case? And who ever, by the most cogent arguments, will be prevailed with to disrobe himself at once of all his old opinions, and pretences to knowledge and learning, which, with hard study, he hath all his time been labouring for, and turn himself out stark-naked in quest afresh of new notions? All the arguments that can be used will be as little able to prevail, as the wind did with the traveller to part with his cloak, which he held only the faster."¹ Human nature is the same now as in the days of Locke.

There is, however, another answer to the present objection. Some individuals are born princes, dukes, or even field-m Marshals; but I am not aware that it has yet been announced that any lady was delivered of a child of genius, or an infant of established reputation. These titles must be earned by the display of mental superiority. But if an individual quit the beaten track pursued by the philosophers of his day, and introduce any discovery, although equally stupendous and new, his reputation is necessarily involved in its merits. Harvey was not a great man *before* he discovered the circulation of the blood, but became such in consequence of having done so. What was Shakspeare before the magnificence of his genius was justly appreciated? The author of *Kenilworth* represents him attending as an humble and comparatively obscure suitor at the court of Queen Elizabeth, and receiving a mark of favour in an "Ah! Will Shakspeare, are you there?" And he most appropriately remarks, that here the immortal paid homage to the mortal. Who would now exchange the greatness of Shakspeare for the splendour of the proudest lord that bowed before the

¹ Book iv. c. 20, sect. 11.

Maiden Queen ? Or let us imagine Galileo, such as he was in reality, a feeble old man, humble in rank, destitute of political influence, unprotected by the countenance or alliance of the great, poor, in short, in every thing except the splendid gifts of a profound, original, and comprehensive genius—and conceive him placed at the bar of the Roman pontiff and the seven cardinals,—men terrible in power, invested with authority to torture and kill in this world, and, as was then believed, to damn through eternity ; men magnificent in state, and arrogant in the imaginary possession of all the wisdom of their age—and let us say who was *then* great in reputation—Galileo or his judges ? But who is *now* the idol of posterity—the old man or his persecutors ? The case will be the same with Gall. If his discoveries of the functions of the brain, and of the philosophy of the mind, stand the test of examination, and prove to be a correct interpretation of nature, they will surpass, in substantial importance to mankind, the discoveries even of Harvey, Newton, and Galileo ; and this age will in consequence be rendered more illustrious by the introduction of Phrenology, than by the victories of Bonaparte or of Wellington. Finally, the assertion, that no men of note have embraced Phrenology, is not supported by fact. Professor Uccelli of Florence sacrificed his academical chair for Phrenology. In “ The Statistics of Phrenology, by Hewett C. Watson,”¹ the most irresistible evidence is produced that Phrenology is now embraced “ by not only a large but a highly talented and respectable body of adherents, of whom no cause need be ashamed.” Phrenology has long been defended by the *Medico-Chirurgical Review*, and more recently by the *British and Foreign Medical Review*, both of London, the best medical journals of Britain. I earnestly recommend Mr Watson’s work to the perusal of all persons who desire to know the real state of the science. Besides, the writings of the phrenologists will bear a comparison in point of skill

¹ Longman & Co. London, 12mo, p. 242. 1836.

extent of information, correctness of logic, and profundity of thought, with those of the most eminent of their opponents.

Objection.—All the disciples of Phrenology are persons ignorant of anatomy and physiology. They delude lawyers, divines, and merchants, who know nothing about the brain ; but all medical men, and especially teachers of anatomy, are so well aware of the fallacy of their doctrines, that no impression is made on them. They laugh at the discoveries as dreams.

Answer.—This objection, like many others, is remarkable more for boldness than truth. For my own part, before adopting Phrenology, I saw Dr Barclay, and other anatomical professors, dissect the brain repeatedly, and heard them declare its functions to be an enigma, and acknowledge that their whole information concerning it consisted of “names without meaning.” It is acknowledged, in an article on the Nervous System, in No. 94 of the *Edinburgh Review*, quoted in vol. i. p. 74, of this work, that the functions of the brain are unknown to anatomists, and that their mode of dissecting it is absurd. This circumstance, therefore, puts the whole faculty, who have not studied phrenologically, completely out of the field as authorities. The *fact*, however, is the very reverse of what is stated in the foregoing objection. Drs Gall and Spurzheim are now pretty generally admitted to have been admirable anatomists of the brain, even by those who disavow their physiology. Dr Vimont's *Traité de Phrénologie* displays great anatomical attainments ; and in Mr Watson's *Statistics*, ample evidence is presented that Phrenology is embraced by a large number of medical men all over the British Islands.

Several other objections were replied to in the fourth edition of this work ; but these I have not considered it necessary here to repeat.

II. MATERIALISM.

Three questions are comprehended under the title of materialism, and merit a distinct consideration. *1st*, Of what substance are the minds of living creatures composed? *2dly*, On what does mind depend *for existence*? and, *3dly*, On what is it dependent for the power of manifesting itself in this life?

In regard to the *first* question, I observe that mind in the abstract has no existence. Individual beings who manifest mind exist, so that the real subject of inquiry is, what *constitutes the power* which manifests thought and feeling in man and animals? Many persons maintain that this power inheres in no material substance, but is the attribute of an immaterial spirit alone. When we enquire, however, for the evidence on which their opinion is formed, it is generally admitted that an immaterial essence cannot be seen, tasted, perceived by smell, felt by the hand, or heard. Its *existence*, therefore, cannot be proved by means of the senses; and much less can its *substance* be discovered through their instrumentality. But it is affirmed that we are *conscious* of the existence of an immaterial spirit within us which thinks and feels. I reply that we are conscious *only of thoughts and feelings*, but have *no* consciousness of the *substance* which thinks and feels. This point is largely discussed in vol. i., from pages 9 to 24, to which I beg leave to refer. Consciousness, then, reveals to us that a Being which thinks and feels *does exist*, but it is silent concerning its elementary composition. From not adverting to the distinction between being conscious of the *existence* of a thinking Being, and being conscious of the *substance* of which it consists, the popular idea probably has arisen that consciousness affords satisfactory evidence that mind, as a spiritual entity, exists independently of matter; but as we are unconscious of the contraction and relaxation of the muscles, we might as well

imagine that our arms and legs are moved, not by material organs, but by the direct impulse of spirit, as entertain the supposition in question. The truly philosophical conclusion is, that, by means of consciousness, we are unable to discover of what the thinking principle is composed.

Again, it is said that matter *cannot think and feel*. I profess myself incapable of refuting this assertion, because it seems to me, that only God who created matter can tell what it can or cannot do. This proposition begs the whole question, and need not, therefore, be discussed.

Other individuals maintain that the brain is the mind, and that thought and feeling are mere functions performed by it, as motion is a function of the muscles. This class of reasoners possess one advantage,—they are able to prove the concomitance between the existence of the brain and the manifestation of thought and feeling. We must admit to them that in this life we have not seen mind manifested without brain. But there is a deeper question behind : Causation is discerned only by the reflecting faculties, which, in certain circumstances, may lead us to a conviction of the *existence of something standing towards observed phenomena in the relation of a cause*, when they are incapable of predicating any thing concerning *the substance* of that something. (See vol. ii. p. 175–6.) Indeed, we have no faculties calculated to give us conceptions of *substance*, even that of familiar objects (see vol. ii. p. 29) ; all that we seem capable of knowing is the *existence* of objects, and the *qualities* which they manifest. We see a stone, when unsupported, fall to the ground, and we call the cause of its descent, gravitation ; but this is a name for a mere power manifested by matter, the existence of which power is made known to us by Causality. We can form no conception of the cause which communicates this power to matter. In like manner, although we should admit that cerebral matter thinks and feels, the question remains, *What* gives it the *power* of thinking and feeling ? The spiritualist asserts that an immaterial essence is added to it, which gives it this power ; but, as we have seen, he can adduce no evidence for his opinion. On

the other hand, the materialist affirms that the power of thought and feeling *inheres* in cerebral matter itself. He is right in saying that we see these mental acts *manifested* by cerebral matter, but then, as we cannot tell *what cerebral matter is*, much less can we logically predicate *what* confers on it the power of thinking and feeling. The assertion that this power *necessarily inheres* in it, could be legitimately maintained only after we knew perfectly its essential nature, which probably God only understands. In the present state of our knowledge this opinion is as completely unsupported by evidence, as the affirmation that it is the addition of an immaterial spirit which confers on cerebral matter the attribute of thought. In short, it appears to me that we cannot, by observation and reason, ascertain what it is that confers on cerebral matter the powers which it manifests.

This argument is very ably stated by the author of "Remarks suggested by the reading of Mr Taylor's Letter to the Lord Provost, &c. of Edinburgh, offering himself as a candidate for the Logic Chair," 1836.—"Philosophers," says he, "are now beginning to discover a glimpse of the truth, that MIND and MATTER, which they have along assumed to be real existences, are only the NAMES, and nothing more than the NAMES, of certain classifications of human ideas; there being within the scope of man's knowledge no such thing as Matter, independently of the different material objects of human perception, or of the individual elementary particles that compose them; and there being, on the other hand, no such thing as Mind, independently of the different individual beings that feel, think, and will. To compare, therefore, together Mind and Matter, *in the abstract*, as antagonist principles, having no common property, as philosophers and theologians have always done, is really, it appears to me, with all deference to the opinions of the great men who have wasted their energies upon it, one of the most futile operations in which the mind of man can be engaged, for it is a comparison of nonentities. There

are no such things as extension, solidity, and resistance, form, size, colour, sound, or smell, different or separate from the material objects that exhibit them; and all that can be legitimately predicated of them is, that they are attributes, qualities, or properties, not of the abstract essence, or substance, called matter, but simply of the particular stock, stone, pigment, earth, metal, or gas, that is the immediate object of thought." P. 10. "Thought and feeling are, equally with extension and solidity, qualities of *concrete* beings, and mankind have no knowledge of any other than concrete beings that possess such powers. Reflection, indeed, upon consciousness, has brought thinking men to the conclusion, that their powers of thinking, feeling, and willing, are the attributes, not of their whole being indiscriminately, but of their brain exclusively; but beyond this their means of inquiry cannot carry them. It is the concrete being lodged within the skull (the *concrete* being, and not the abstraction called Mind) that feels, thinks, and wills; but what are the elements that compose that concrete? and what is the principle or mainspring of its activity? are questions that no man can answer." P. 14.

The *second* question is, On what is the power of feeling and thought *dependent for existence*? All the knowledge which we possess concerning the nature of this power, is not sufficient to enable us to answer the question. The only response that can philosophically be given, is, that it depends for its existence on the will of the Being who created it.

The *third* question is, On what is the power of feeling and thought dependent for *manifesting itself in this life*? It appears to me that facts demonstrate that its capability of manifesting itself in this world depends on the condition of the organization. When, therefore, I say "that the mental qualities and capacities are *dependent* upon the bodily constitution," the sentence should be completed, "not for *existence*, but for *the power of acting* in this material world." This explanation has been frequently stated in the phreno-

logical books ; and it should be remembered, as its repetition would be tedious.

According to these views, the question of Materialism is one of no practical importance. If the power of manifesting the mind in this life depends on the condition of the corporeal organization, and especially on that of the brain, it follows that, for every state of thought and feeling, there must be a corresponding state of the brain, and that it is impossible for human beings to operate on the minds of other human beings except through the instrumentality of organs, and subject to the laws imposed by the Creator on the organic system. It will become, therefore, the interest and the duty of all persons to perfect the brain as the means of improving the mental manifestations, equally whether they embrace the spiritual or the material hypothesis. The assumption or denial of the existence of an immaterial spirit, distinct from organization, is the expression of an opinion concerning merely the *ultimate cause* of the mental manifestations, a point which leads to no practical result, and seems, moreover, to be placed as completely beyond the reach of our faculties as the discovery of the ultimate cause of gravitation. It has been well remarked, that one philosopher may assume the cause of gravitation to be in its nature spiritual, and another, material ; and that yet both, while they remain in this world, will be equally subject to its influence, will equally find it their interest to attend to its operations, and be equally capable of applying its powers to useful purposes : and the same may be predicated in regard to our assumptions concerning the ultimate cause of the mental manifestations.

The objection that Phrenology leads to materialism, however, has been so frequently urged against it in popular forms, that it demands some farther consideration. A few observations will suffice, for it appears singularly unphilosophical, even upon the most superficial consideration. Phrenology, viewed as the assertion of certain physical facts, cannot, if unfounded, logically lead to any result, except the

disgrace and mortification of its supporters. On such a supposition, it cannot overturn religion, or any other *truth*; because, by the constitution of the human intellect, error constantly tends to resolve itself into nothing, and to sink into oblivion; while truth, having a real existence, remains permanent and impregnable. In this view, then, the objection, that Phrenology leads to materialism, is absurd. If, on the other hand, the science is held to be a *true interpretation of nature*, and if it be urged, that, nevertheless, it leads fairly and logically to materialism, then the folly of the objection is equally glaring; for it resolves itself into this,—that materialism is the constitution of nature, and that Phrenology is dangerous, because it makes this constitution known.

The charge assumes a still more awkward appearance in one shape in which it is frequently brought forward. The objector admits that the mind uses the body as an instrument of communication with external nature, and maintains that this fact does not necessarily lead to materialism. In this I agree with him; but I cannot perceive how it should lead nearer to this result, to hold that each faculty manifests itself by a particular organ, than to believe that the whole mind acts by means of the whole body, or the whole brain. In short, in whatever point of view Phrenology is regarded, whether as true or false, the objection of materialism is futile and unphilosophical; and one must regret that it should have been brought forward in the name of religion, because every imbecile and unfounded attack against philosophy, made in this sacred name, tends to diminish the respect with which it should always be invested.

But let us consider more closely the nature and extent of the point in dispute, and of the real effect of our decision upon it. The question, as already mentioned, is, Whether the *substance* of which the thinking principle is composed be matter or spirit? And the effect of our decision, let it be observed, is not to *alter the nature of that substance*, whatever it be, but merely to adopt an opinion consonant with, or adverse to, a fact in nature over which we have no control.

Mind, with all its faculties and functions, has been manifested by man and animals since the creation, and will be manifested till the races become extinct, and no opinion of ours, concerning the cause of the phenomena, can have the least influence over that cause itself. The mind is invested by nature with all its properties, and these it will possess, and manifest, and maintain, let men think, and speak, and write what they will concerning its substance. If the Author of nature has invested the mind with the quality of endless existence, it will, to a certainty, flourish in immortal youth, in spite of every appearance of premature decay. If, on the other hand, He has limited its existence to this passing scene, and decreed that it shall perish when the animating principle passes from the body, then all our conjectures, arguments, discussions, and assertions, respecting its immortality, will not add one day to its existence. The opinions of man, therefore, concerning the substance of the mind can have no influence whatever in changing or modifying that substance itself; and if so, as little can these opinions undermine the constitution of the mind, or its relations to time and eternity, on which, as their foundations, morality and religion must, and do, rest as on an immutable basis. According to Phrenology, morality and natural religion originate in, and emanate from, the primitive constitution of the mental powers themselves. Faculties and organs of Benevolence, Hope, Veneration, Justice, and Reflection exist. Now, our believing that the mind will die with the body, will not pluck these sentiments and powers from the soul; nor can our believing the mind to be immortal implant a single one more of them in our constitution. They would all remain the same in functions and constitution, and render virtue amiable, and vice odious, although we should believe the mind to be made of dust, just as they would do were we to believe it to be a more immediate emanation from the Deity himself.

In short, this question of materialism is one of the most vain, trivial, and uninteresting that ever engaged the human intellect; and nothing can be more unphilosophical, and

more truly detrimental to the interests of morality and religion, than the unfounded clamour, or cant, shall I call it, which has been poured from the periodical journals about the dangers attending it. A manly intellect, instead of bowing before prejudice, would dissipate it, by shewing that the question is altogether an illusion, and that, adopt what opinion we will, concerning the substance of the mind, every attribute belonging to it must remain unaltered and unimpaired.¹

The solution of this question, therefore, is not only unimportant, but impossible; and this leads me to observe, that no idea can be more erroneous than that which supposes the dignity and future destiny of man as an immortal being, to depend, of necessity, on the substance of which he is made.

Let us allow to the materialist, for the sake of argument, that the brain is the mind, and that medullary matter thinks, —What then? If, in fact, it does so, it must be the best possible substance for thinking, just because the Creator selected it for the purpose, and endowed it with this property. In this argument, the religious constantly forget, that the same Omnipotent hand made the brain which created the mind and the universe itself, and that, in the dedication of every cerebral convulsion to its objects, be they thinking or any other process, the Divine Wisdom is as certainly exercised as in impressing motion on the planets, or infusing light and heat into the sun. If, therefore, *de facto*, God has made the brain to think, we may rest assured that it is exquisitely and perfectly adapted for this purpose, and that His objects in creating man will not be defeated, on account of His having chosen a *wrong substance*, out of which to constitute the thinking principle. But what *are* His objects in creating

¹ Lord Brougham indeed maintains, that, in this life, "the mind is different from, and independent of, matter altogether." (*Discourse of Natural Theology*, p. 107); but this intenable assertion has been already adverted to in vol. i. pages 9 to 24.

man? This brings us to the jet of the question at once. Mr Lawrence, it is said, founds no moral doctrine on his opinions regarding the essence of the mind; but other materialists, who make these opinions the foundation of atheism, wish us to believe that the best evidence of the Divine intention in creating the human soul, is to be found by discovering the *substance* of which it is made; and they insinuate, that, if it be immaterial, the conclusion necessarily follows, that it is intended for magnificent destinies, while, if it be composed of a rude and vulgar stuff, it must be intended only to inhabit this lower world. Here, however, sense and logic equally fail them: for no principle in philosophy is more certain than that, from all the knowledge which we are capable of attaining concerning any substance, we can infer nothing touching the end for which it is fitted. Exhibit to a human being every variety of imaginable essence, and if you allow him to know no more of its properties than he can discover from examining its constituent parts, he will be utterly incapable of telling whether it is calculated to endure for a day, or last to eternity. The materialist, therefore, is not entitled, even from the supposed admission that cerebral matter thinks, to conclude that the human being is not immortal. The true way of discovering for what end man has been created, is to look to the *qualities* with which he has been endowed, trusting that the substance of which he is composed will be found perfectly suited to the objects of his creation. When we inquire into his qualities, we find the thinking principle in him to differ, not only in *degree*, but in *kind*, from that of the lower animals. The latter have no faculty of justice, to indicate to them that the unrestrained manifestation of Destructiveness or Acquisitiveness is wrong; they have no sentiments of Wonder and Veneration to prompt them to seek a God whom they may adore; they have no faculty of Hope, pointing out futurity as an object of ceaseless contemplation, and leading them to expect a life beyond the grave; and, indeed, several of the convolutions of the brain, which in man form the organs of

these sentiments, appear not to exist in the lower animals. The organs also, which in man serve to manifest the faculties of Reflection, are, in the lower animals, eminently deficient; and their understanding, in exact correspondence with this fact, is so limited as to be satisfied with little knowledge, and to be insensible to the comprehensive design and glories of creation. Man, then, being endowed with qualities which are denied to the lower creatures, we are entitled, by a legitimate exercise of *reflection* (the subject being beyond the region of the external senses), to conclude, that he is designed for another and a higher destiny than is to be allotted to them, whatever be the *essence* of his mind.

These principles enable us to dispose of an objection which was long ago stated by Dr Barclay, and has since been repeated by many other opponents, and yet is in itself very absurd. Dr Barclay's hypothesis is, that the mind fashions the organs. If it is impossible to discover the *substance* of which the mind is composed, it is equally impracticable to tell whether the faculties determine the size of the organs, or the organs limit the power of the faculties. Some of the difficulties with which Dr Barclay's notions are beset are the following :—If an immaterial mind fashions the organs, then God bestows idiotic minds, insane minds, stupid minds, and viciously disposed minds, on different individuals; and these make bad organs :—a doctrine which appears fully more objectionable than the theory, that we know nothing of the nature of the ultimate cause of thought and feeling; but that the manifestations of the mental powers and dispositions, in this life, are affected by the state of the organs. On the former supposition, human efforts can do nothing to ameliorate the condition of the mind; for the immaterial principle is beyond our reach, and until we modify it, no change in the organs can take place. On the latter hypothesis, we are encouraged with hopes of success to do our best; for it assumes that the imperfections lie in the organs, which are subject to modification by means of propagation and exercise.

According to this view, also, insanity is not a disease of an immaterial principle, but an affection of the organs, which may be cured by medicine. See *Phrenological Journal*, vol. ii. p. 149.

An extensive discussion of the subject of Materialism will be found in *The Phrenological Journal*, vol. xv. pp. 87, 294, 315, 343-5-6-7-8, 373-5, and in vol. xvi. p. 40.

III. ON THE EFFECTS OF INJURIES OF THE BRAIN ON THE MANIFESTATIONS OF THE MIND.

In the former Editions of this work, I inserted a treatise on this subject by Dr A. Combe ; but as the best medical authors have now abandoned the objections founded on these injuries, I consider it unnecessary here to repeat Dr Combe's answers. They will be found at full length in the Transactions of the Phrenological Society. I beg to refer also to the *Phrenological Journal*, vol. xi. p. 331.

CONCLUSION.

(To the Second Edition.)

IN the Introduction to this work, it is observed, that, "in surveying the philosophy of man, as at present exhibited to us in the writings of philosophers, we perceive, *first*, That no account is given of the influence of the material organs on the manifestations of the mental powers ; that the progress of the mind from youth to age, and the phenomena of sleep, dreaming, idiocy, and insanity, are left unexplained or unaccounted for ; *secondly*, That the existence and functions of some of the most important primitive faculties are still in dispute ; and, *thirdly*, That no light has been thrown on the nature and effects of combinations of the primitive powers in different degrees of relative proportion. It is, with great truth, therefore, that Monsieur De Bonald, quoted

by Mr Stewart, observes, that "diversity of doctrine has increased from age to age, with the number of masters, and with the progress of knowledge; and Europe, which at present possesses libraries filled with philosophical works, and which reckons up almost as many philosophers as writers; poor in the midst of so much riches, and uncertain, with the aid of all its guides, which road it should follow; Europe, the centre and focus of all the lights of the world, has yet its *philosophy* only in expectation."

May I hope that Phrenology will appear to the attentive reader calculated to supply the deficiency here pointed out, and to furnish Europe, at last, with the Philosophy so long in expectation?

Hitherto the writings of Dr Gall have been little known to the British public, except through the medium of hostile reviews; and the most unmeasured ridicule and abuse have been poured out against them, as if they were a disgrace to the century in which they were produced: His fellow-labourer Dr Spurzheim has sustained an equal share of this unmerited storm. In preparing the present volume for the press, I have drawn largely from the works of both of these authors; in many instances I have compared their statements of fact with nature, sifted their arguments, and weighed deliberately their conclusions; and I now feel it an imperative duty to state, that the present generation has, in my humble judgment, re-acted, in their cases, the scenes which have attached so deep a stigma to the ages of Galileo and Harvey. The discoveries of the revolution of the globe, and the circulation of the blood, were splendid displays of genius, interesting and beneficial to mankind; but their results, compared with the consequences which must inevitably follow from Dr Gall's discovery of the functions of the brain (embracing, as it does, the true theory of the animal, moral, and intellectual constitution of man), sink into relative insignificance. Looking forward to the time when the real nature and ultimate effects of Dr Gall's discovery shall be fully recognised, I cannot entertain a doubt that posterity will

manifest as eager a desire to render honour to his memory, as his contemporaries have shewn to treat himself with indignity and contempt. If the present work shall tend in any degree to rouse the public attention to his merits, and to excite the philosophers of England to do him justice ere he die, it will accomplish one great end of its publication. Let them at last lay aside the prejudice which has so long kept them back from looking with their own eyes into his works, and from appealing, with the lights which he affords, to Nature, as the standard by which to try the merits of his pretensions. If they will examine, they will find that a fortunate thought opened up to him a vast region of discovery, and that he has displayed gigantic powers in prosecuting it to its results; that, instead of being an ignorant pretender to knowledge, he is a man of profound and solid erudition; that, so far from being a reckless theorist, he is the most stubborn adherent to fact that has perhaps ever appeared in the annals of mental philosophy; and that, instead of being characterized by a weak understanding and bewildered imagination, he manifests an intellect at once profound, regulated, and comprehensive.

Dr Spurzheim's works and lectures have rendered him better known in this country, and the force of truth has for some years been operating in his favour. No reviewer would now reckon it creditable, to use the terms so unceremoniously applied to him in 1815; but a great debt of respect and gratitude remains to be paid by Britain and the world to Dr Spurzheim. The great discovery of Phrenology, and the announcement of many of its applications, unquestionably belong to Dr Gall; but to Dr Spurzheim is due the praise of early appreciating its importance, and of fearlessly dedicating his life to the enlargement of its boundaries and the dissemination of its principles, at a time when neither honour nor emolument, but on the contrary obloquy and censure, were bestowed on its adherents. In admiring the science as it now appears, it becomes us to recollect also, that we owe much of its excellence and interest to this gifted individual. He has

enriched it with valuable anatomical discoveries, ascertained the functions of several highly important organs, shed over it the lights of a refined and analytic philosophy, and pointed out important fields of its application. With profound gratitude and respect, therefore, I acknowledge myself indebted to him for the greatest gift which it was possible for one individual to confer on another,—a knowledge of the true Philosophy of Man.

To the Reverend David Welsh, Mr W. Scott, Mr Simpson, Mr Lyon, and Dr Andrew Combe, fellow-labourers with me in Phrenology, I owe many obligations. In availing myself freely of the lights which they have struck out, it has been my constant wish to acknowledge the source of my information; but if amidst the habitual interchange of ideas with which they have honoured me, their views have, in any instance, been amalgamated with my own thoughts, and their authors forgotten, I solicit their forgiveness, assuring them that inadvertency alone has been the cause of any such mistakes.

EDINBURGH, *October 1825.*

POSTSCRIPT TO THE THIRD EDITION.

SINCE the foregoing observations were written, Dr Gall has been numbered with the dead. Like many other benefactors of mankind, he has died without his merits being acknowledged, or rewarded, by the “great in literature and science” of his own age; but he possessed the consciousness of having presented to the world one of the most valuable discoveries that ever graced the annals of philosophy, and enjoyed the delight of having opened up to mankind a career of improvement, physical, moral, and intellectual, to which the boldest imagination can at present prescribe no limits.

This appears to be the reward which Providence assigns to men eminently gifted with intellectual superiority ; and we may presume that it is wisely suited to their nature. A great duty remains for posterity to perform to the memory of Dr Gall, and I cannot entertain a doubt that in due time it will be amply discharged.

It gives me the greatest satisfaction to renew, after five years' additional experience, the acknowledgment of my highest gratitude and esteem for Dr Spurzheim ; and to express my earnest wish that Britain may, by suitable encouragement, retain him permanently to herself.

EDINBURGH, *October 1830.*

POSTSCRIPT TO THE FOURTH EDITION.

It is painful in no ordinary degree now to speak of Dr Spurzheim in the past tense ; but since the third edition of this work was printed, he too has been called away. He died at Boston, U. S. on the 10th of November 1832, while zealously engaged in communicating the invaluable truths of Phrenology to a people in every respect worthy of the doctrine, and of the man who came among them to teach it. The citizens of Boston, and of the United States generally, justly appreciated the talents and moral worth of this excellent philosopher. They honoured him while alive, gave him a public funeral, and erected a beautifully appropriate monument to his memory in Auburn Cemetery. In expressing my heartfelt sorrow for his loss, I render a sincere tribute of respect and gratitude to them for the kindness with which they received him, and the honour with which they enshrined his mortal remains.

EDINBURGH, *31st October 1836.*

POSTSCRIPT TO THE FIFTH EDITION.

SINCE the 31st October 1836, I have visited Germany, and the United States of North America, and have endeavoured to multiply my observations, and also to correct the views, and to enlarge the number of facts, published in the former editions of this work. It remains with the reader to judge how far I have been successful.

EDINBURGH, 31st *March* 1843.

APPENDIX.

No. I.

Text, page 20.

The Brain the Organ of the Mind.

Dr Gall supports the proposition that the brain is the organ of the mind, by a number of facts in addition to those mentioned in the text. A lady of distinguished talent fell and wounded the back of her head ; from this time she was subject to periodical fits of madness, and gradually lost her intellectual brilliancy.—A man whom Dr Gall saw at Pforzheim, in the Grand Duchy of Baden, had his frontal bone fractured at the age of six years, and in consequence became liable to periodical fits of fury.—In another, residing at Weil, near Stuttgart, a portion of the skull was depressed by a blow from a stone. Before this accident, he bore the reputation of a peaceful citizen, but after recovery his friends were surprised to find his character entirely changed ;—though formerly so mild and good-natured, he was now a troublesome brawler. Dr Gall preserved his skull, which is thick and very dense, thus shewing how much the brain had been affected,¹—Father Mabillon had a very limited capacity in early youth, insomuch that, at the age of eighteen, he could neither read nor write, and hardly even speak. In consequence of a fall, it became necessary to trepan his skull : during his convalescence a copy of Euclid fell into his hands, and he made rapid progress in the study of mathematics.²—Dr Gall mentions also the case of a lad who, up to his thirteenth year, was incorrigibly dull, having fallen from a staircase and wounded his head, he afterwards, when cured, pursued his studies with distinguished success.—Another young man, when at the age of fourteen or fifteen, was equally unpromising, but fell from a stair in Copen-

¹ Gall, II. 174.

² Id. p. 176.

hagen, and subsequently manifested great vigour of the intellectual faculties. Nor was this the full extent of the change. Before the accident, his moral character was unexceptionable; but latterly it became so bad as to deprive him of an important situation, and ultimately to consign him to prison.—Gretry tells of himself in his *Memoirs*, that he was indebted for his musical genius to a violent blow inflicted on his head by a falling beam of wood.—Haller speaks of an idiot who, having been seriously wounded on the head, manifested intelligence while the injury was unhealed, but relapsed into imbecility as soon as the cure was complete.¹—Dr Caldwell mentions the case of a mechanic, near Lexington, Kentucky, whose intellectual powers were greatly augmented by “an inflammatory action of the brain resulting from a mechanical injury.” A similar change, he adds, “took place on one of the sons of the late Dr Priestley. A fracture of the skull, produced by a fall from a two-story window, improved not a little the character of his intellect. For a knowledge of this fact I am indebted to the Doctor himself.”²—A young man who had received a considerable wound near the temporal bone was trepanned by Acrel. When cured, he felt an irresistible propensity to steal, although formerly no such disposition had existed: Acrel procured his liberation from prison by attributing this troublesome inclination to the effects of the wound.³—There is in Dr Gall’s collection a cast of the head of a relative of his own, whose brain was injured by the fall of a tile: before the accident this person was good-natured, pacific, and regular in his habits, but afterwards became eccentric, quarrelsome, and apt to fly into a passion at the slightest contradiction.⁴ Mr Hood of Kilmarnock has published similar cases. A man was waylaid and struck severely on the head with a pair of tongs, which penetrated to a considerable depth into his brain at the situation of the left organ of Cautiousness; subsequently to this he manifested an unusual degree of timidity. Another individual had his skull fractured by falling from a stage-coach, the injury extending over the organs of Destructiveness and Combaticiveness; and his temper in consequence became more irritable than before.⁵ Little is yet known concerning the manner in which the injuries produced these effects. See *Phrenological Journal*, vol. xii. p. 285.

¹ Gall, i. 215, 216; v. 120.

² Caldwell’s *Elements of Phrenology*, 2d edit. p. 92, 93.

³ Gall, i. 450.

⁴ *Phren. Journ.* vii. 33.

⁵ *Id.* ii. 75. *et seq.*

No. II.

Text, page 181.

Objections to Dr Spurzheim's Classification of the Mental Faculties. By Robert Cox. Abridged from the Phrenological Journal, vol. x. p. 154.

Every mental faculty is capable of acting in various forms ; in other words, it may exist in different states, each giving rise to a distinct variety of consciousness—a distinct affection of the mind.¹ The sense of feeling, for example, is one of the fundamental faculties, but the consciousness resulting from its activity is modified according to the particular state in which its organs happen to be, from the influence of some external or internal cause. Thus, when we hold our fingers near the fire, the sensation of heat arises, and this is one affection or mode of action of the faculty. If we prick the skin with a needle, the affection is that of pain: tickle the soles of the feet, and the sensation of itching follows: dip the hands into melting snow, and the sensation of cold is experienced. All these affections, it will be observed, are referrible to one faculty alone; they are modes of action of a single power.

The affections or modes of action of the fundamental powers are divided by Dr Spurzheim into *qualitive* and *quantitive* affections; that is to say, first, those which differ in kind, as the sensation of heat differs from the sensations of pain, cold, and itching; and, secondly, those which differ in intensity or power. The sense of taste, for example, is, like that of feeling, subject to modifications, giving rise to different affections or states of consciousness. According to the nature of the substances taken into the mouth, the affection is that of sweetness, bitterness, sourness, acritude, and so on. These are *qualitive* affections of a single faculty—affections different in kind, and not merely in

¹ I employ the word *affection* as it is used by Dr Spurzheim, "solely according to its etymology, to indicate the different states of being affected of the fundamental powers." See his *Philosophical Principles of Phrenology*, p. 43. In this section the last (American) editions of Dr Spurzheim's works are quoted.

degree. The sense of smell, in like manner, is modified when stimulated by different odoriferous substances ; and that of hearing is variously affected by different sounds, as shrill, grave, creaking, and whistling. So also the sentiments of pride and contempt are two qualitative affections of the single faculty of Self-Esteem.

The *quantitive* affections are no other than the qualitative existing at different points in the scale of intensity, quantity, or power ; a single qualitative affection often receiving different names, according to its degree of force. Thus, one general qualitative affection receives at various points in the scale of intensity the names of velleity, desire, longing, and passion ; one general qualitative affection of Acquisitiveness or Love of Approbation is called at a certain point pleasure, at another joy, and at a third ecstasy ; while another general qualitative affection of the same faculties is termed on one occasion pain, on another grief, and on a third wretchedness or misery. The special qualitative affection of Cautiousness called *fear* includes the quantitive affections of wariness, apprehension, anxiety, terror, and panic.

It happens with many of the faculties that their affections are of two kinds : *1st*, an *inclination* or propensity to act in a particular way ; and, *2dly*, certain *emotions* or sentiments which accompany, but are easily distinguishable from, propensity. Thus, one affection of Acquisitiveness is an inclination to take possession of property and to hoard it up, while another is the sentiment of greed. Self-Esteem is the source of an inclination to wield authority, and at the same time of the emotion which its name denotes, including the various quantitive affections of self-satisfaction, self-reliance, self-importance, pride, and overweening arrogance. Contempt, which is a qualitative affection of the same faculty, falls, like the emotion named self-esteem, within the second or sentimental class of affections. Upon the existence of these two kinds of affections Dr Spurzheim has founded an important part of his classification.

Gall and Spurzheim agree in dividing the mental faculties into two great orders ; the first comprehending what are termed the dispositions, and the second the powers of the understanding. This division has been recognised from the remotest antiquity, under the names of soul and spirit (*l'âme et l'esprit*), will and understanding, the moral and intellectual faculties, heart and head. Dr

Spurzheim calls the former the *feelings* or *affective faculties*,¹ of which, says he, "the essential nature is to feel emotions;"² and the latter the *intellectual faculties*, whose "essential nature is to procure knowledge."³ To the designation *intellectual faculties* it appears impossible to object; but as it is by no means evident that emotions are peculiar to the faculties called affective, the use of that term, as defined by Dr Spurzheim, seems to be improper. In fact, many general emotions are modes of action of the intellectual as well as of the affective powers. Every faculty, without exception, desires; and what is desire but an emotion? Every faculty experiences pleasure and pain, and are not these emotions? Take the sense of taste as an example. This, being an intellectual faculty, experiences, according to Dr Spurzheim, no emotion; but, as Dr Hoppe of Copenhagen has already inquired, "when we sit down, delighting in the dainties of a well-stored table, is not then the working of the sense wholly affective?"⁴ I propose, therefore, to define the affective faculties as those of which the essential nature is to feel emotions, or inclinations, or both, but which do not procure knowledge.

Dr Spurzheim's classification, however, does not stop here. "Both orders of the cerebral functions," says he, "may be subdivided into several genera, and each genus into several species. Some affective powers produce only desires, inclinations, or instincts; I denominate them by the general title *propensities*. The name *propensities*, then, is only applied to indicate internal impulses which invite to certain actions. They correspond with the instincts or instinctive powers of animals. There are other affective faculties," he continues, "which are not confined to inclination alone, but have something superadded that may be styled *sentiment*. Self-Esteem, for instance, produces a certain propensity to act; but, at the same time, feels another emotion or affection which is not merely propensity."⁵ The affective faculties named by Dr Spurzheim *propensities*, are Amativeness, Philoprogenitiveness, Inhabitiveness, Adhesiveness, Combaticiveness, Destructiveness, Secretiveness, Acquisitiveness, and Constructiveness; those which he calls *sentiments* are Self-Esteem, Love of Approbation, Cautiousness, Benevolence, Veneration, Firmness, Conscientiousness,

¹ *Phrenology*, p. 131.

² *Phil. Prin. of Phren.*, p. 48.

³ *Phil. Prin. of Phren.* p. 52.

⁴ *Phren. Jour.* iv. 308.

⁵ *Phrenology*, p. 131.

Hope, Marvellousness, Ideality, Mirthfulness or Gayness, and Imitation.

To Dr Spurzheim's division of the affective faculties into Propensities, or mere tendencies to certain modes of action,—and Sentiments, which are propensities with emotions superadded,—I offer no objection, except that, as will be shewn in the sequel, a third genus ought to be introduced. But when the claims of the individual faculties to be ranked in one or other of the subdivisions are narrowly scrutinized, I fear that much inaccuracy becomes apparent.

Judging from the present state of our knowledge of the fundamental powers of the mind, the whole of the affective faculties, with the exception of only five, seem entitled to be called *sentiments*, taking that word as it is defined by Dr Spurzheim. These five exceptions I conceive to be—*1st*, Constructiveness, which is understood to be a mere inclination or tendency to fashion or configure, without, so far as I can see, any special emotion superadded to it; *2dly*, Imitation, which is in exactly the same predicament, though classed as a sentiment by Dr Spurzheim; and, finally, Love of Approbation, Hope, and Ideality, which appear to be mere special emotions, superadded to no propensity whatever. Except these five, I repeat, the whole affective faculties seem to be propensities, tendencies, or inclinations, having emotions annexed to them. This position it will be proper to demonstrate in detail. In taking a survey of the faculties, I shall notice, first, the sort of actions to which they give a tendency; and, secondly, the simple affections or emotions by which that tendency is accompanied.

Amativeness includes both a tendency to act in a particular way, and a concomitant emotion. The former is the tendency to propagate, and inclination to acts of dalliance in general; while the latter is the emotion of sexual love. This faculty, therefore, falls within Dr Spurzheim's definition of a sentiment.

Of Philoprogenitiveness the same is true. The tendency is an inclination to associate with children, and the emotion is love of young.

Adhesiveness is a tendency to associate with our fellow-creatures generally, and the corresponding emotion is love or attachment between friends. This emotion never exists except in combination with a desire to be in the society of the person beloved.

The next faculty is usually named Combativeness; but, for

reasons elsewhere published,¹ I conceive that Opposiveness is a more accurate term. The propensity is not in all cases a tendency to fight, but a general inclination to oppose. The emotion of which the mind is conscious when this tendency acts, is boldness or courage.

Destructiveness is a tendency to injure. The superadded emotion has no name that I am aware of, except when high in the scale of quantitative affections. Ferocity is then the appellation which it receives. The emotion is an ingredient in various compound affections, such as anger, jealousy, malice, and envy.

Alimentiveness may be regarded as a propensity to eat and drink. Hunger and thirst are not usually referred to this organ; but these seem to be merely the sentimental affections which accompany the desire to feed.

Secretiveness is an inclination to conceal. The emotion, like that of Destructiveness, receives a name only when it is strong. Slyness and suspicion are emotions of this faculty in a state of vigorous action.

Acquisitiveness is a tendency to acquire and hoard property. Cupidity or greed is the emotion when it is very powerful.

Constructiveness is a tendency to fashion. As already observed, no special emotion accompanies its activity; so that it is entitled to be called a propensity in Dr Spurzheim's sense of that word.

Self-esteem is the name of the emotion arising from the organ No. 10. Self-complacency is almost synonymous with it; and pride is the emotion higher in the scale of quantitative affections of the faculty. The corresponding propensity is a tendency to take the lead, to exercise authority, to attend to self-interest and self-gratification, to prefer one's self to other people.

Love of Approbation is an emotion which assumes the name of vanity when in excess. It seems doubtful whether any propensity accompanies it. Shame is an affection of this power.

Cautiousness is the emotion of wariness, and, when powerful, of fear. The propensity is, to take precautions against danger.

Benevolence is surely not less a propensity than Destructiveness, and no reason appears why they should be classified differently. It is a tendency to increase the enjoyment and diminish the misery of sentient beings. The emotions accompanying this tendency are good-will and compassion.

¹ See *Phren. Journ.*, vol. ix. p. 147.

Veneration is a propensity to act with deference, submission, or respect, towards our fellow-men,—to obey those in authority, and to worship the Supreme Being. The emotion is well expressed by the words *veneration* and *deference*, and when in great vigour is called *devotion*.

Firmness I consider to be a tendency to persist in conduct, opinion, and purpose. Resolution is the name which its emotion receives.

Conscientiousness seems to be a propensity to give every man his due. The emotion is the sentiment of justice ; and the actions prompted by it are honest, candid, just.

Hope is a mere emotion, unaccompanied by any propensity. It can hardly be said to give rise, except indirectly, to a tendency to act in a speculative manner. Acquisitiveness, modified by the emotion of Hope, appears to do this.

With Ideality no propensity appears to be connected. There is only the lively emotion of the beautiful and sublime.

Wonder is clearly an emotion, but whether no inclination is associated with it may perhaps be doubted. Is it not, for example, a propensity to exaggerate?

The emotion of the ludicrous is accompanied by a propensity to act comically.—Imitation is a mere propensity, without any special emotion whatever.

This concludes the list of the affective faculties. If we take the guidance of the principle by which Dr Spurzheim was led, they ought, I think, to be divided into three genera instead of two—the first including those faculties which give rise to tendencies as well as emotions ; the second, those which are tendencies without emotions ; and the third, those which are emotions without tendencies. In the first genus, therefore, we ought to rank Amativeness, Philoprogenitiveness, Adhesiveness, Opposiveness, Destructiveness, Secretiveness, Acquisitiveness, Self-Esteem, Cautiousness, Benevolence, Veneration, Firmness, Conscientiousness, Wonder, and Mirthfulness or the sentiment of the ludicrous. In the second genus—that of tendencies without emotions—I would place Constructiveness and Imitation ; and in the third, comprehending mere emotions, the faculties of Hope and Ideality, and perhaps also Love of Approbation. Such appears to be the classification of the affective faculties, on Dr Spurzheim's principle, warranted by the present state of phrenological science.

No subdivision of the intellectual powers, or those which procure knowledge, was made by Dr Gall ; but Dr Spurzheim has

minutely classified them. "They may be subdivided," says he, "into four genera. The first includes the functions of the external senses and of voluntary motion; the second, those faculties which make man and animals acquainted with external objects and their physical qualities; and the third, the functions connected with the knowledge of relation between objects or their qualities;—these three genera I name *perceptive faculties*. The fourth genus comprises the faculties which act on all the other sensations and notions, and these I style *reflective faculties*."¹ Respecting the first and last of these genera I offer no remarks. The second includes Individuality, Form, Size, Weight, and Colouring, all of which, except Individuality, seem rightly classified. The exception of Individuality is here made on the ground that nothing but the qualities of external objects is perceptible, and that by these alone the existence of an object is revealed to us; so that Individuality, which takes cognizance of no quality, cannot be said to "perceive" at all. Its essential nature appears to be, as Dr Spurzheim expresses it, "to produce the *conception* of being or existence, and to know *objects* in their individual capacities."² In describing it, Dr Spurzheim studiously avoids the use of the word *perception*; he speaks only of conception, knowledge, and cognition.

Under the third genus of intellectual faculties—those "which perceive the relations of external objects"—Dr Spurzheim ranges Locality, Order, Number, Eventuality, Time, Tune, and Language. In some respects he is here in error. Neither Eventuality, Time, nor Language, is cognizant of relations of external objects; Tune perceives only relations of *sounds*, and, according to the best of our present knowledge, Order is merely (what Dr Spurzheim calls it) a "disposition to arrange," and desire to see every thing in its proper place.

In his *Philosophical Principles, and Outlines of Phrenology*, Dr Spurzheim inconsistently comprehends the second and third genera of the intellectual faculties in one, which is described as embracing the "internal senses or perceptive faculties which procure knowledge of external objects, their physical qualities, and various relations."

Mr Joshua Toulmin Smith, in his "*Synopsis of Phrenology*," (Boston, U. S., 1838), makes some remarks on the classification of the faculties, and presents the results of his reflections in the following tables:—

¹ *Phrenology*, p. 131.

² *Manual of Phrenology*, p. 59.

"I. PROPELLENT POWERS.

GROUP.	INDIVIDUAL FACULTY.	SATISFYING OBJECT.	EXCITING OBJECT.	How contributes to general result of Group.
1. PRESERVATIVE.	1. Vitaliveness. (*) 2. Alimentiveness.	1. Life. 2. Eating.	1. Death.* 2. Hunger.	1. Preservation of simple existence. 2. Sustenance of life.
2. SOCIAL.	(1.) 1. Amativevness. (2.) 2. Philoprogenitiveness. (3.) 3. Marriage. (4.) 4. Adhesiveness. (5.) 5. Inhabitivevness.	1. Union of sex. 2. Children and their happiness. 3. Constant presence of individual of opposite sex. 4. Friendship. 5. Home.	1. Presence of opposite sex. 2. Want of children or their misery. 3. Want of this single object. 4. Solitude. 5. Absence from home.	1. Continuation of species. 2. Welfare of the young. 3. Union in marriage. 4. Social union and compact. 5. Attachment to home, and patriotism.
3. PROTECTIVE.	(6.) 1. Combativevness. (7.) 2. Destructiveness. (8.) 3. Secretiveness. (9.) 4. Cantiousness.	1. Overcoming opposition. 2. Destruction of existence. 3. Concealment. 4. Safety.	1. Any obstacle. 2. Existence of any object whose destruction would be beneficial. 3. Openness. 4. Apprehension.	1. Overcoming of opposition and difficulties. 2. Annihilating that whose destruction is necessary to safety or welfare. 3. Restraining exhibition or expression which must be restrained. 4. Constant circumspection.
4. DIGESTATIVE.	(10.) 1. Self-Eateem. (11.) 2. Love of Approbation	1. Objects consistent with worthiness in eyes of self. 2. Objects consistent with worthiness in eyes of others.	1. Degradation (in own estimation.) 2. Contempt (from others.)	1. Securing independence. 2. Securing general estimation.
5. MORAL DIRECTIONAL.	(12.) 1. Benevolence. (13.) 2. Veneration.† (14.) 3. Firmness. (15.) 4. Conscientiousness.	1. Circumstances surrounding others which would be pleasing to self. 2. Deference to that which is known to be unattainable. 3. Indismissibility. 4. Known permanent (in opposition to mere immediate) satisfaction.	1. Circumstances surrounding others which would be painful to self. 2. Presence of that which is known to be unattainable. 3. Vindictiveness. 4. Immediate (in opposition to permanent) gratification.	1. Constant regard of good and happiness of others. 2. Impelling to yield to authority of that known to be superior. 3. Prompting to constancy and consistency. 4. Urging to yield / <i>ascended immediate to real permanent good.</i>
6. PROGRESSIVE.	(16.) 1. Hope. (17.) 2. Admirativeness.‡ (18.) 3. Ideality. (19.) 4. Imitation. (20.) 5. Acquisitiveness. (21.) 6. Constructiveness.	1. Certainty of future good. 2. Presence of the unknown. 3. Transcendent perfection. 4. Accumulation. 5. Adaptation.	1. Uncertainty of future. 2. All knowledge. 3. The mean and vile. 4. Absence of similarity. 5. "Not enough." 6. Need and a absence of adaptation.	1. Relying on future good, and taking steps to attain it. 2. Constantly as one object becomes known, seeking after new ones. 3. Striving for attainment of perfection in everything. 4. Aiming at similarity to that already attained. 5. Accumulating provisions for the future. 6. Discovery of means of abridging labour.

"* It will be seen, by reference to the laws of Excitement, that the idea of any object (cognized by the Comprehensives) is sufficient to excite any Propellent. This must be borne in mind throughout, in speaking of the related objects, both exciting and satisfying.

"† There is no faculty whose influence is more difficult in a few words to explain, than Veneration. I have done it as well as I was able. The subject will be fully analyzed in my large work, and my definition proved to be correct.

"‡ The name given to this faculty I have altered, it being inexpressive of, and misleading as to, the real related objects.

"From the activity of the PROPELLENTS ALONE springs WILL.

"II. COMPREHENSIVE POWERS.*

GROUP.	FACULTY.	SATISFYING OBJECT OR ATTRIBUTES OF OBJECTS COGNIZED BY EACH FACULTY.
1. EXTERNAL SENSES.	Muscular sense. Touch. Taste. Smell. Sight. Hearing.	Impressions of objects in external world conveyed through these to cognizance of the internal faculties.
2. SIMPLE PERCEPTIVE.	(22.) 1. Individuality. (23.) 2. Form. (24.) 3. Size. (25.) 4. Weight.	1. Simple <i>abstract existence</i> . 2. Simple forms. 3. Simple size, or magnitude. 4. Simple gravity, weight, or resistance.
3. OBJECTO-RELATIVE.	(26.) 1. Number. (29.) 2. Order. (32.) 3. Tone. (31.) 4. Time. (28.) 5. Colour. (27.) 6. Locality. (30.) 7. Eventuality.	1. Relations of quantity. 2. Relations of physical proportion. 3. Relations of primitive sounds. 4. Relations of parts of period. 5. Relations of primitive colours. 6. Relations of parts of space. 7. Relations of <i>active existence</i> .
4. REFLECTIVE.*	(36.) 1. Similitude. (35.) 2. Connexion. (20.) 3. Discombination.	1. Combination of objects in which any point of similarity exists. 2. Combination of objects between whose existence a necessary connexion exists. 3. Discombination of points (in objects otherwise similar, or otherwise necessarily connected) in which no similitude or connexion exists.†
5. EXPRESSIVE.	(33.) 1. Language.	1. Artificial signs expressive of results of every mode of mental activity.

* "The names commonly applied to each faculty in this group are so exceedingly erroneous and misleading, that I have taken the liberty of changing the whole. My reasons will be stated at full in my larger work.

† "That this is the true function of the faculty hitherto termed *WIT*; long and deep investigation has convinced me. The truth of it will be very fully demonstrated in my larger work."

For a farther elucidation of Mr Smith's views, I refer to his work itself.

No. III.

Text, p. 182.

Names and Order of the Mental Faculties adopted by Dr Gall.

No.	FRENCH.	GERMAN.	ENGLISH NAMES given by Dr SPURZHEIM.
1.	Instinct de la génération.	Zeugungstrieb.	Amativeness.
2.	Amour de la progéniture.	Jungenliebe, Kinderliebe.	Philoprogenitiveness.
3.	Attachement, amitié.		Adhesiveness.
4.	Instinct de la défense de soi-même et de sa propriété.	Muth, Raufsinn.	Combativeness.
5.	Instinct carnassier.	Wurgsinn.	Destructiveness.
6.	Ruse, finesse, savoir-faire.	List, Schlaueit, lugheit.	Secretiveness.
7.	Sentiment de la propriété.	Eigenthumsinn.	Acquisitiveness.
8.	Orgueil, fierté, hauteur.	Stolz, Hochmuth, Herschsucht.	Self-Esteem.
9.	Vanité, ambition, amour de la gloire.	Eitelkeit, Ruhmsucht, Ehrgeitz.	Love of Appropriation.
10.	Circonspection, prévoyance.	Behutsamkeit, Vorsicht, Vorsichtigkeit.	Cautiousness.
11.	Mémoire des choses, mémoire des faits sens des choses, éducatibilité, perfectibilité.	Sachgedächtniss Erziehungs- Fähigkeit.	Eventuality and Individuality.

No.	FRENCH.	GERMAN.	ENGLISH Names given by Dr SPURZHEIM.
12.	Sens des localités, sens des rapports de l'espace.	Ortsinn, Raum- sinn.	Locality.
13.	Mémoire des per- sonnes, sens des per- sonnes.	Personen-sinn.	Form.
14.	Sens des mots, sens des noms, mémoire des mots, mémoire verbale.	Wort-Gedächtniss.	Language.
15.	Sens du langage de parole, talent de la philologie, &c.	Sprach-Fors- chungs-sinn.	Held by Dr Spurzheim to be included in the last organ.
16.	Sens des rapports des couleurs, talent de la peinture.	Farben-sinn.	Colouring.
17.	Sens des rapports des tons, talent de la musique.	Ton-sinn.	Tune.
18.	Sens des rapports des nombres.		Number.
19.	Sens de mécanique, sens de construc- tion, talent de l'ar- chitecture.	Kunst-sinn, Bau- sinn.	Constructiveness.
20.	Sagacité comparative.	Vergleichender- scharfsinn.	Comparison.
21.	Esprit métaphysique, profondeur d'esprit.	Metaphysischer Tief-sinn.	Causality.
22.	Esprit caustique, es- prit de saillie.	Witz.	Wit.
23.	Talent poétique.	Dichter-Geist.	Ideality.

No.	FRANCE.	GERMAN.	ENGLISH. Names given by Dr SPURZHEIM.
24.	Bonté, bienveillance, douceur, compas- sion, &c.	Gutmuthigkeit, Mitleiden, &c.	Benevolence.
25.	Faculté d'imiter, mi- mique.		Imitation.
26.	Sentiment religieux.		Veneration.
27.	Fermeté, constance, persévérance.		Firmness.

NAMES AND ORDER OF THE ORGANS.

ACCORDING TO THE CLASSIFICATION IN THE FIRST AND SECOND EDITIONS
OF THIS WORK.

ORDER I.—FEELINGS.

Genus I.—PROPENSITIES.

- | | |
|--------------------------|----------------------|
| 1. Amativeness. | 6. Destructiveness. |
| 2. Philoprogenitiveness. | Appetite for Food. |
| 3. Concentrativeness. | 7. Constructiveness. |
| 4. Adhesiveness. | 8. Acquisitiveness. |
| 5. Combativeness. | 9. Secretiveness. |

Genus II.—SENTIMENTS.

1.—*Sentiments common to Man and Lower Animals.*

- | | |
|--------------------------|-------------------|
| 10. Self-Esteem. | 12. Cautiousness. |
| 11. Love of Approbation. | 13. Benevolence. |

2.—*Sentiments proper to Man.*

- | | |
|-----------------|------------------------|
| 14. Veneration. | Wonder. |
| 15. Hope. | 17. Conscientiousness. |
| 16. Ideality. | 18. Firmness. |

ORDER II.—INTELLECTUAL FACULTIES.**Genus I.—EXTERNAL SENSES.**

Feeling or Touch.	Hearing.
Taste.	Sight.
Smell.	

**Genus II. INTELLECTUAL FACULTIES WHICH PERCEIVE
EXISTENCE.**

19. Individuality.	21. Size.
Upper Individuality.	22. Weight.
Lower Individuality.	23. Colouring.
20. Form.	

**Genus III.—INTELLECTUAL FACULTIES WHICH PERCEIVE
THE RELATIONS OF EXTERNAL OBJECTS.**

24. Locality.	27. Number.
25. Order.	28. Tune.
26. Time.	29. Language.

Genus IV.—REFLECTING FACULTIES.

30. Comparison.	32. Wit.
31. Causality.	33. Imitation.

In my Lectures delivered in the University of Heidelberg in May, June, and July 1842, I adopted the following arrangement:

- I. PROPENSITIES, including Amativeness, Philoprogenitiveness, Concentrativeness, Adhesiveness, Combaticiveness, Destructiveness, Secretiveness, Acquisitiveness, Alimentiveness.
- II. FEELINGS, including Self-Esteem, Love of Approbation, Cautionness, Benevolence, Veneration, Firmness, Conscientiousness, Hope, Ideality.
- III. FACULTIES OF REPRESENTATION OF TALENTS, including Constructiveness, Wit, Imitation, Tune, Language.

IV. PERCEPTIVE FACULTIES arranged according to their objects.

I. *In relation to space*; Individuality, Form, Size, Locality, Weight, Colouring, Order;—II. *In relation to Time*; Time, Eventuality;—III. *In relation to Number*; Number.

V. REFLECTING FACULTIES—Comparison, Causality.

 No. IV.

Text, p. 191.

Dr Julius Budge, in his *Researches on the Nervous System* (published at Frankfort-on-Maine, 1841) describes the results of a great number of experiments performed by him on the brains and spinal marrow of several of the lower animals. While the cruel sufferings inflicted on the creatures are, in my opinion, not to be justified, some of the conclusions which he draws are interesting. He found that, by irritating with the lancet or lunar caustic one side of the cerebellum of a male cat immediately after death, he caused the testicle on the opposite side to move. "Als ich nun die eine Seite des kleinen Gehirnes reizte, schwoll der entgegengesetzte Hoden auf, verliess seine Stelle, und richtete sich so in die Höhe, dass er mit dem Saamenstrange einen rechten Winkel bildete, dessen eine Linie nach vorn stand. Hörte ich auf zu reizen, so legte sich der Hoden wieder hin; reizte ich von Neuem, so sah ich dieselbe Bewegung." He irritated, alternately with the cerebellum, the lobes of the brain, the corpora quadrigemina, the optic thalami, and the corpora striata, on both sides, but he never perceived the slightest movement of the testicles to follow from these operations. He found the same results to follow, not in all cases however, but in at least fifty other instances, and he states his firm conviction that the nerves of motion for the *Ductus deferens* and the testicles, have their termination (centralende) in the cerebellum.

Dr Budge regards the cerebellum as performing more important functions connected with voluntary motion. The following is an abstract of his views. He finds fibres of feeling and fibres of motion in all parts of the spinal marrow; but they are *collected*,—those of feeling at the back, and those of motion at the front. There are distinct fibres for flexion and for extension of the muscles, in the spinal marrow. The whole nervous fibres for voluntary motion unite in the medulla oblongata, and they end in the *pons*, and have all *crossed* by the time they reach the pons. Irritation of the pons and all below produces convulsive movements; but irritation of the cerebellum produces no convulsions; it is attended only with incapacity to execute regulated movements. For regulated motion, executed by means of extensor and flexor muscles, there must be, first, an *exciting* power, and secondly, a restraining power. It is the balance of the two that produces regulated action. The same cerebral parts cannot *both excite* and *restrain* at one and the same time. The hemispheres supply the exciting power, the cerebellum supplies the restraining power. When Flourens removed the hemispheres, the animal lost all voluntary exciting power; it sat like an unconscious automaton; when he removed the cerebellum, it could run, but not with regulated steadiness. When one side of the cerebellum is cut through, the restraining power on *one* side is withdrawn, while the restraining power of the other is left entire. The animal can execute regulated movements with *one side*, and not with the other; it therefore necessarily *turns* round, moving only towards the suspended side, when it means to go forward. These results the author produces at pleasure by experiments on dogs, cats, rabbits, &c. Farther, the cerebellum is the central end also of the nerves which go to the organs of reproduction. By irritating it, in a male cat, he caused the testes to move strongly. The nerves of motion of the uterus also end in the cerebellum. The central termination of the nerves of motion of the bladder is in the cerebellum. The nerves of the rectum end there also. The nerves which occasion the movements of the intestines arise in the corpora striata, go through the corpora quadrigemina, thalami nervorum optictorum, and cerebellum, into the medulla oblongata and spinal marrow; lie chiefly in the front layers of the spinal marrow; go through the ganglia of the N. sympatheticus, and end in the muscular covering of the intestines. Irritation of the right thalamus and left corpus striatum produced motion in the stomach;

no motions in it follow from irritating the brain itself. The nerves of the stomach go through the cerebellum, but do not end there. The cerebellum has no effect on the heart's action. The heart is moved by the brain's influence, but, in consequence of having no connection with the cerebellum, the brain cannot stop its motions. Thus, the brain uses the cerebellum as its instrument for stopping action: all functions may be *moved* by the brain, but none can be stopped unless their nerves end in the cerebellum. Stopping is essential to *voluntary* motion: Hence all nerves of voluntary functions have ends in the brain for motion, and ends in the cerebellum for restraint. If irritation is applied to the foot of a decapitated frog, it withdraws the foot. The explanation is, that the irritation is discharged by the nerve of feeling into the nerve of motion in contact with it in the spinal marrow, and the nerve of motion produces flexion of the muscles, all without consciousness. The hemispheres send an irritation (called Will) to the nerves of motion, and they act. Will can stimulate to motion, but it needs the cerebellum to stop it. Such are the views of Dr Budge. His book is logically written, and extremely condensed; but it is subject to two objections; 1st, The running and ending of the fibres is described, not from seeing them, but from inferences that, from the effects produced, they *must* run as described; and, 2dly, his views are not complete—he needs much metaphysical reasoning to produce agreement among the phenomena observed. Dr Budge intends to continue his researches.

Dr W. B. Carpenter, in "his Lectures on the Functions of the Nervous System," reported in the London Medical Gazette,¹ observes that "The classes (of animals) which have the greatest variety of movements, and which require for them the most perfect combination of a large number of separate muscular actions, have, taken collectively, the largest cerebellum. Of all classes of Vertebrata, Reptiles are the most inert; and their motions require the least co-ordination. The active predacious Fishes far surpass them in this respect; and may be compared with birds in the energy of their passage through the water, and in their facility of changing their direction during the most rapid progression. Their cerebellum, accordingly, bears to their spinal cord very much the same proportion with that of birds. On the other hand, the Flat Fish, which lie near the bottom of the ocean, and which have a much

¹ (718—xxviii—page 894.)

less variety of movement, have a very much smaller cerebellum; and the Vermiform Fishes, which are almost or completely destitute of fins, and whose progression is accomplished by flexion of the body, have a cerebellum so small as to be scarcely discoverable, their motion being, like that of the lower Articulata, almost entirely of a reflex character, each segment being influenced by its own ganglionic centre, and the spinal cord constituting by far the largest proportion of the nervous centres. On looking at the class of Birds, we observe that the active predacious Falcons, and the swift-winged Swallow (the perfect control possessed by which over their complicated movements every one must have observed), have a cerebellum much larger in proportion than that of the Gallinaceous birds, whose powers of flight are small, or than that of the Struthious tribe, in which they are altogether absent. Lastly, on comparing its proportional size, in the different orders of Mammalia, with the number and variety of muscular actions requiring combined movements, of which they are respectively capable, we observe an even more remarkable correspondence. In the hoofed quadrupeds, in which the muscular apparatus of the extremities is reduced to its greatest simplicity, and in which the movements of progression are simple, the cerebellum is proportionally smaller than it is found to be in some birds; but in proportion as the extremities acquire the power of prehension, and together with this the power of application to a great variety of purposes—still more, in proportion as the animal becomes capable of maintaining the erect posture, in which a constant muscular exertion, consisting of a number of most elaborately combined parts, is required,—do we find the size of the cerebellum, and the complexity of its structure, undergoing a rapid increase. Thus, even between the dog and the bear there is a marked difference, the latter being capable of remaining for some time in the erect posture, and often spontaneously assuming it, whilst to the former it is any thing but natural. In the semi-erect apes, again, there is a very great advance in the proportional size of the cerebellum; and those which most approach man in the tendency to preserve habitually the erect posture, also come nearest to him in regard to the size of the cerebellum. Now it is evident that man, although far inferior to many of the lower animals in the power of performing various particular kinds of movement, far surpasses them all in the number and variety of the

combinations which he is capable of executing, and in the complexity of the combinations themselves. Thus, if we attentively consider the act of *walking* in man, we shall find that there is scarcely a muscle of the trunk or extremities which is not actually concerned in it; some being engaged in performing the necessary movements, and others in maintaining the equilibrium of the body, which is disturbed by them. On the other hand, in the horse or camel, the muscular movements are individually numerous, but they do not require nearly the same perfect co-ordination. And in the bird, the number of muscles employed in the movements of flight, and in directing the course of these, is really comparatively small; as may at once be perceived by comparing the rigidity of the skeleton of the trunk of the bird with that of man, and by remembering the complete inactivity of the lower extremities during the active condition of the upper. In fact, the motions of the wings are so simple and regular, as to suggest the idea that, as in Insects, their character is more reflex than directly voluntary:—an idea which is supported by the length of time during which they can be kept up without apparent fatigue, and also by an important fact hereafter to be mentioned, which experimental research has disclosed. It is seen, then, that comparative anatomy fully confirms the idea which experimental physiology suggests, respecting the chief functions of the cerebellum." Dr Carpenter afterwards remarks, that the Phrenological doctrine, "that the cerebellum is the organ of the sexual instinct, is by no means incompatible with the other; and by some (Phrenologists) has been held in combination with it." The facts reported by Dr Budge, if found to be correct, would go far to explain the phenomena adverted to by Dr Carpenter, while they would also tend to confirm the phrenological doctrine, that a portion of the cerebellum serves to manifest the Amative propensity.

ADDITIONAL APPENDIX,

No. V.

(SEE VOL. II. p. 381.)

DOCUMENTS

LAI D BEFORE THE

RIGHT HONOURABLE LORD GLENELG,

SECRETARY FOR THE COLONIES.

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REPRESENTATION sent by Sir **GEORGE S. MACKENZIE**,
Bart. to the Right Honourable Lord **GLENELG**, Secretary for
the Colonies,—in reference to Convicts sent to New South
Wales. February 1836.

THE recent atrocities that have occurred in New South
Wales, are proof that there is mismanagement somewhere,
and that caution is indispensable for the future. But the
manner in which that caution is to be exercised, involves
questions of much importance, perhaps of difficulty. It is,
however, obvious that caution must, in the first place, be
directed to the convicts. At present they are shipped off,
and distributed to the settlers, without the least regard to
their characters or history. A man or a woman found
guilty of an offence, is deemed an object of punishment,
whether the individual have spent previous life in crime, or
has been driven by hard necessity unwillingly to commit it.
To bring back a person condemned by the law to a course
of industrious and honest habits, by means suited to the
natural character and dispositions, is a thing never thought
of. Punishment is most ignorantly deemed a universal
panacea for criminal propensities, and degradation is es-
teemed the fitting means to restore a human being to self-
respect, and to inspire an inclination towards good conduct.
Such ideas, though they lead to practice that has for ages
been condemned by its results, arise out of ignorance of the

human constitution ; and until that ignorance shall have been dispelled from the minds of rulers, and its place filled up by an extended view of the actual constitution of man, error must continue to direct their measures in the highway to evil. To be able to legislate for man implies a knowledge of man. But in the case which is now specially adverted to, that knowledge is entirely absent. In a short address, as this must be, it is impossible to point out the means of acquiring a knowledge of the true mental constitution of man. It can only be stated that it has been discovered, has been neglected, but still is making rapid progress in enlightening the British people.

It is therefore submitted,

1st, That when the importance of the colony of New South Wales is considered, convicts should not be sent out indiscriminately. Their individual history and characters should be inquired into, and the best selected for the colony, and the worst kept for discipline at home. But, with every exertion, the selection cannot be accurately made without the assistance of some one acquainted with the true Philosophy of Man.

2d, It is conceived that the management of convicts should be a special department of Colonial Government, to which undivided attention ought to be given. At home the convicts are not under the superintendence of the Colonial Secretary ; but when they are to be sent abroad, he ought to have the power to select such as are the fittest for the purposes of his department, and in which there ought to be an officer qualified to investigate the history of convicts, and to select them on phrenological principles.

That such principles are the only secure grounds on which the treatment of convicts can be founded, proof may be demanded, and it is ready for production. I now unhesitatingly offer to your Lordship the following public test of their truth and efficacy, your acceptance of which, whatever may be your notions of what the result will be, will at all events do you honour. It is this :

Let your Lordship direct inquiry to be made into the circumstances which brought a given number of convicts to trial and punishment, and if possible let so much of their previous history as can be got at, be stated. Suppose the number to be fifty. Let these be numbered, and their history, trial, and crimes inserted in a catalogue—of course I trust that this shall be as correctly done as possible, and in strict good faith. Let this catalogue be laid aside. On being informed that this has been done, I will go to London and take with me an experienced Phrenologist. Let the convicts be brought to us one by one, and we will make a catalogue of our own in the same order, and in it we will enter what we deem the characters of the individuals to be, and what were the crimes they probably had committed; and likewise, we will state, in particular cases, what employment, or at least the nature of the employment, they had probably been engaged in, and that in which they are likely to be useful. The only information we will desire is, whether the individual has or has not been educated. We will examine the individuals in the presence of whom your Lordship pleases. When our catalogue shall be completed, we will then request a meeting with your Lordship and such friends as you may wish to be present, and that the cata-

logues shall be publicly compared; reserving only this, that if any discrepancy of importance shall appear, we shall be permitted to question the subject, and to make inquiry into the case ourselves, attended by those who made the previous inquiry.

The result of such an experiment as this, will, I venture to predict, satisfy your Lordship that means do exist for the selection of convicts for the Colonies, and for their classification for treatment. I refer your Lordship to the fact of my friend Mr Combe having actually done what is here proposed at Newcastle in October 1835, as narrated in the *Phrenological Journal*, No. 46, page 524, of which a copy accompanies this communication. If I can prevail on you to make this experiment, I shall ever feel deeply grateful, and your Lordship will gain the gratitude of all truly wise patriots, and lay the foundation of a benefit to your country such as no ruler has yet conferred either for effect or extent.

LETTER—SIR GEORGE MACKENZIE.

To the Right Honourable LORD GLENELG, Secretary of State for the Colonial Department.

MY DEAR LORD,

I now put into your hands a number of Certificates from eminent men, confirming my former assertion, that it is possible to classify convicts destined for our penal settlements, so that the Colonists may be freed from the risk of having atrocious and incorrigible characters allotted to

them, and the Colonial public from the evils arising out of the escape of such characters. Allow me to take this opportunity to state, that, unless punishment shall be awarded not only proportionally to the crime committed, but to the actual moral character and degree of enlightenment of the culprit, it cannot have the effect expected from it, and may even render criminals more wicked. The power to punish ought to be in the hands of those who have charge of convicted persons, not to be positively inflicted under an imperative law, but to be used in the business of reform only when, to a sound and philosophical judgment, it may appear necessary. The experience of penal settlements teaches us that, while all criminals condemned to transportation are regarded as *equally* deserving of punishment, however various their degrees of guilt, they are not by any means equally prone to continue in a course of crime; for we find that some, with the certainty of the severest punishment before them, do continue to manifest propensity to crime, and do commit it whenever opportunity offers; while others become, of their own accord, sensible of their errors, (though condemned as equally guilty with the others), exert themselves to overcome their evil tendencies, and arrive at the station of peaceable, industrious, and respectable members of the community. These facts, though perfectly and long notorious, have not attracted the notice of either the Colonial Government, or the Government at home; but they prove incontestibly, that there is a very great difference in the moral constitution of criminals condemned to transportation, a fact of which philosophy may make the most important use. The horrid slaughter of the people on my sons

property would not have happened, I am bold enough to say, had the Government been in possession of means to classify the convicts, and to keep the most atrocious in restraint at home, sending to New South Wales only the better disposed among them.

Such means I am now the instrument of placing in the hands of a liberal Government, whether it shall be regarded or not ; and your Lordship, I trust, will not think me tedious, while I very briefly set before you the general facts which have brought men of philosophical understanding and habits of investigation, to perceive, that a discovery of the true mental constitution of man has been made, and that it furnishes us with an all-powerful means to improve our race,—and that the more rapidly, if those in whose hands the government of our country is placed will only listen to facts, look at their verification, and attend to philosophical induction from them.

Your Lordship must be aware of the fact, that, independently of rank, education, or wealth, men differ from each other very widely in the amount and kind of their intellectual power, in moral feeling, and in their tendencies to indulge their propensities. It is too well known that titled, intelligent, wealthy blackguards exist, guilty of the grossest violation of moral law, while they contrive to escape the penalties of statutes, which, however, occasionally reach their enormities. That such are rather encouraged by what is called high society, is notorious ; and surely a titled gambler, or cheat, or seducer, cannot be reckoned less guilty than a poor, ignorant wretch, who steals perhaps to sustain life, and not from a depraved propensity.

It is, however, to the fact of difference of character and talent among men of all stations of society to which I anxiously desire your Lordship's attention. This difference must clearly be the effect of something. There have been philosophers who taught that man is a *tabula rasa*, on which we may stamp what talent and what character we please. This, however, has long been demonstrated, by thousands of facts of daily occurrence, to be a mere delusion. Differences in talent, intelligence, and moral character, are now ascertained to be the effects of differences in organization. The brain has been long regarded by physiologists as the organ by which the mind is connected with the body, and by means of which the mental faculties are manifested. To this conclusion, the result of a vast amount of observation and experiment has conducted them. After this fact had been universally admitted, a similar amount of observation and experiment led to the demonstration, by the celebrated Gall, of different portions of the brain being allotted to the power of manifesting different mental faculties. In those who exhibit the manifestation of any particular faculty strongly, the organ in the brain is proportionally large. The differences of organization are, as the certificates which accompany this shew, sufficient to indicate *externally* general dispositions, as they are proportioned among one another. Hence, we have the means of estimating, with something like precision, the actual natural characters of convicts, (as of all human beings,) so that we may at once determine the means best adapted for their reformation, or discover their incapacity of improvement, and their being

proper subjects of continued restraint, in order to prevent their further injuring society. It is this that, for the sake of the future prosperity of the Australian colonies, and the security and peace of the settlers, and also for the sake of exalting them in the scale of morality, I wish your Lordship to put to the test of experiment for your own satisfaction. With however little merit it may have been acquired, I have some credit which is at stake with the result of the proposed experiment, and which your Lordship, it is hoped, will not think I risk rashly in this matter. But it is not only my own philosophical credit, but that of those who have written these certificates, and of many thousands besides in every quarter of the globe. With such support on all sides of me, your Lordship cannot wonder at the confidence with which I urge you towards fame of the most enduring kind,—that of being a benefactor to your country. Attacks are still made on the science of Phrenology ; but it is a science which its enemies have never, in a single instance, been found to have studied ; and I freely confess the fact that, when I myself derided it, I knew nothing of it. Gross misrepresentations of fact, as well as wild unfounded assertion, have been brought to bear against it again and again, and have again and again been exposed. It is spreading its light far and wide, and reduced, in many instances, to most beneficial practice ; and it will be a proud day for our country when the same Government that has provided vigorously to reform our institutions, shall proceed in the true path to moral reform. There is a near prospect of education being conducted on the true principles of man's

nature under national sanction ; and I hope the time is not far distant, when their influence on criminal legislation will be apparent. I cannot help calling your Lordship's notice to the fact, that many among the most able and zealous propagators of the new philosophy were at one time scoffers against it, until brought to attend to it by a display of most striking facts, exhibited to them by the amiable and lamented Spurzheim.

I need not detain your Lordship longer. To save you as much trouble as possible amidst your important and onerous duties, I have had the certificates and this address printed ; and, if your Lordship will permit me to do so, I should be glad to publish them, that phrenologists may know, that one of the earliest converts to their science in Great Britain has not lost an opportunity, at the end of twenty years, to exert himself in attempting to spread its benefits in a direction in which they will, if not now, at a future period certainly, be duly felt and appreciated ; and also that the world may know, I fondly hope, that your Lordship has been the first member of a liberal government who has had sufficient moral courage to do that which alone can satisfy a liberal man of the truth or falsehood of what is pressed on his notice by the best possible motives. And if, as thousands of the most talented men in Europe and America confidently anticipate, experience shall convince you, your Lordship will at once perceive a source from which prosperity and happiness will flow in abundance over all our possessions. In the hands of enlightened governors, Phrenology will be an engine of unlimited improv-

ing power in perfecting human institutions, and bringing about universal good order, peace, prosperity, and happiness.

Believe me, my dear Lord, very truly yours,

G. S. MACKENZIE.

CERTIFICATES.

I. From Dr WILLIAM WEIR, Lecturer on the Practice of Medicine, formerly Surgeon to the Royal Infirmary of Glasgow, and joint Editor of the Glasgow Medical Journal.

To the Right Hon. Lord GLENELG.

MY LORD,

BUCHANAN STREET, GLASGOW,
March 14. 1836.

At the request of Sir Geo. S. Mackenzie, Bart. and in reference to a correspondence which has passed between your Lordship and that gentleman, concerning the evils which the colony of New South Wales suffers from desperate characters being sent out as convicts, and let to the settlers as servants, I beg leave to make the following statement.

I have paid much attention, during the last twenty years, to human physiology in general, and to the science of Phrenology in particular, and have had many opportunities of comparing the form and size of the head in living individuals with their talents and mental character. I have also been in the constant practice of examining the skulls and casts from the heads of deceased persons, and comparing these with their known mental characters and their actions exhibited during life; and I have found a constant and

uniform connexion between the talents and natural dispositions, and the form and size of the head.

I have no hesitation, therefore, in stating it as my firm conviction, drawn from these sources, and from long study and observation, that the natural dispositions of man are indicated by the form and size of the brain, to such an extent as to render it quite possible for persons who have had practice in such manipulations, to distinguish during life men of desperate and dangerous tendencies from those of good dispositions.

I have the honour to be, my Lord, your Lordship's most obedient Servant,

WILLIAM WEIR, M.D.

II. From ALEXANDER HOOD, Esq. Surgeon, Kilmarnock.

To the Right Hon. Lord GLENELG.

KILMARNOCK,

MY LORD,

March 14. 1836.

I take the liberty of addressing your Lordship in consequence of having received a letter on the part of Sir George S. Mackenzie, Bart., whose sons are settled in the colony of New South Wales, respecting the great evils which the colonists there sustain from desperate characters being sent out as convicts, and let out to the settlers as servants. Sir George suggests that Phrenology might be beneficially applied in pointing out the natural dispositions of convicts, and employed as a means of draughting from among them the most desperate and incorrigible characters, previous to transportation.

Having for many years devoted a considerable time to the study of Phrenology, and tested the truth of its principles by the most severe and conclusive experiments, the

result has been a gradual but thorough belief in the truth of the doctrines which it promulgates, and that it is susceptible of being applied with much advantage to the community in the manner suggested by Sir George Mackenzie. My daily observation as a medical man confirms me in this belief, and I conceive that a skilful Phrenologist is capable, by an examination of the human head, of detecting any defective or predominant intellectual faculty, moral feeling, or animal propensity, nearly with as much accuracy as a physician can discover the healthy or diseased condition of the heart, lungs, liver, or spine.

I have the honour to be, my Lord, your Lordship's most obedient humble servant,

ALEX. HOOD, Surgeon.

III. From RICHARD CARMICHAEL, Esq. M. R. I. A., Corresponding Member Royal Academy of Medicine of France, Honorary Member of several Medical Societies; Consulting Surgeon of the Richmond Surgical Hospital, and Author of several Works on Surgery.

To the Right Hon. Lord GLENELG,
Secretary for the Colonies, &c. &c. &c.

RUTLAND SQUARE, DUBLIN,

MY LORD,

March 15. 1836.

Having received a letter at the instance of Sir George Mackenzie, desiring to know whether it is my opinion and belief that "the natural dispositions are indicated by the form and size of the brain, to such an extent as to render it quite possible, during life, to distinguish men of desperate and dangerous tendencies from those of good dispositions," and to lay such opinion before your Lordship:

I have no hesitation in certifying that such is my belief, and that I consider this mode of discriminating persons of good from those of bad dispositions, may be most usefully employed for various purposes advantageous to society.

I have the honour to be your Lordship's very obedient servant,

RICH^d. CARMICHAEL.

IV. From EDWARD BARLOW, M. D. of the University of Edinburgh ; Member of the Royal College of Surgeons of Ireland ; Senior Physician to the Bath Hospital, and the Bath United Hospital ; Fellow of the Royal Medical and Chirurgical Society of London, &c. &c.

To the Right Hon. Lord GLENELG,
Secretary of State for the Colonies, &c. &c. &c.

MY LORD,

BATH, SYDNEY PLACE,
March 15. 1836.

At the desire of Sir George Mackenzie, I willingly offer my testimony in favour of the application of Phrenology to the examination of convicts, which he has suggested to your Lordship. Deeply interested in the science, from a thorough conviction of its truth, I have, for upwards of twenty years, watched its progress ; and I have no hesitation in expressing my firm belief, that all mental functions are dependent for the manifestations on the conformation of the brain ; and that the natural dispositions are indicated by its form and size to such an extent, as to render it quite possible, during life, to distinguish men of desperate and dangerous tendencies from those of good dispositions.

In early life, my Lord, I, through ignorance and inconsiderateness, joined in the doubts respecting Phrenology, that then prevailed; and mine was afterwards no sudden conversion resulting from raised imagination, but the clear conviction produced by calm and patient inquiry. The grounds of my present faith it would be out of place here to display; but I may remark, that the application of Phrenology which Sir George Mackenzie now advocates, was actually and most successfully made ten years ago, in the examination, by Mr De Ville of London, of one hundred and forty-eight convicts, transported in the ship *England* to New South Wales, and that the safe completion of the voyage was owing to the information respecting individual character that Mr De Ville had supplied. The facts here referred to are matter of public record, as they were reported officially to Dr Burnett, by Mr G. Thomson, the surgeon of the ship. The history of the voyage, as detailed by Mr Thomson, is deposited in the Victualling Office.

I consider the truths of Phrenology to be as well established as are those of any other branch of natural science, being throughout, not fanciful nor hypothetical assumptions, but rigid inductions from numerous and accurately observed facts. By such course of observation and reasoning alone can natural truths ever be developed; by it has the philosophy of matter attained its present advancement; and to it are we indebted for the only sound and rational philosophy of mind that has yet been produced, namely, that which Phrenology teaches. The applications of this science to the affairs of human life are sure to extend as its principles become known and appreciated; and eventually they cannot fail to prove of the very highest importance to the welfare and happiness of the human race. The application of it which Sir George Mackenzie has proposed

to your Lordship, has my cordial approval, and the full sanction of my unbiassed judgment.

I have the honour to be, my Lord, your Lordship's faithful and obedient servant,

E. BARLOW, M. D.

V. From Messrs ALEXANDER HOOD, JOHN CROOKS, and JOHN MILLER, Surgeons, and Dr ROBERT WALKER, Kilmarnock.

The Right Hon. LORD GLENELG.

MY LORD,

KILMARNOCK, 16th March 1836.

OUR attention having been directed to Sir G. S. Mackenzie's communication to your Lordship, respecting the applicability of Phrenology to the discrimination of the character of convicts transported to the British Colonies, we, whose names are subscribed, beg, with all submission, to offer our united and unqualified testimony in corroboration of his opinion.

We are led to do so, my Lord, from a decided conviction, that Phrenology is the *true* science of the mind—that the natural dispositions are so accurately indicated by the form and size of the brain, as to render it perfectly practicable, for properly qualified persons to distinguish, by examination of the head, individuals possessing such as are dangerous to the peace and safety of society, from those who are differently constituted; and farther, that the bringing the doctrines of Phrenology to bear, not only upon the matter in question, but our social institutions in general,—upon education, and other means of *preventing* crime, as well as upon the *punishment* of it, and the proper disposal of the perpetrators,—would, besides its being an important advance in philosophy, be attended with great *practical* advantage to the community.

With the highest esteem for your Lordship's public and private character, we have the honour to be, My Lord, your Lordship's obedient humble servants,

ALEX. HOOD, Surgeon.
JOHN CROOKS, Surgeon.
JOHN MILLER, Surgeon.
ROBERT WALKER, M. D.

VI. From ROBERT FERGUSON, Esq. M. P. for Haddingtonshire.

To GEORGE COMBE, Esq. Edinburgh.

18. PORTMAN SQUARE,
17th March 1836.

MY DEAR SIR,

I HAVE no hesitation in declaring it as my belief, that the science of Phrenology enables those who have made themselves master of it, to decide on any prominent and marked mental faculty or propensity of an individual. And, in more directly answering your circular, I think it would be attended with the greatest advantage to society, if the heads of such convicts who have been guilty of the crimes of murder and such atrocious acts, should be examined.

For it is certain, and can be proved from innumerable examples, that such an investigation, by practical persons, could easily pronounce whether they were likely to be incurable in their propensities, or whether other dispositions in their intellectual constitution might, if properly cultivated, restore them to the rank of respectable citizens.

The first should be prevented from having any intercourse with society, or hope of future freedom whatever.

I see many difficulties yet in having a Board for this important investigation; but means might be fallen upon to be enabled to come to such conclusions as might guide to

the necessary character of the punishment, for the future safety of society.

I remain very truly yours,

ROBT. FERGUSON.

VII. From JOHN FIFE, Esq., one of his Majesty's Justices of the Peace for the Borough of Newcastle-upon-Tyne, Member of the Royal College of Surgeons of London, Member of the Medico-Chirurgical Society of Manchester, and of the Royal Medical Society of Edinburgh, Lecturer on Surgery in the Newcastle School of Medicine, &c. &c. &c.

To the Right Honourable Lord GLENELG,
Secretary for the Colonies.

NEWCASTLE-UPON-TYNE,

March 19. 1836.

MY LORD,

Having received a communication from Mr Combe, at the request of Sir George S. Mackenzie, Bart., stating your Lordship's disinclination to select convicts for New South Wales by phrenological signs, and requesting me to express my opinion upon the proposal, accompanying the statement of such opinion by an account of my claims to moral influence and to some share of your Lordship's attention, I hereby assert my conviction that the natural dispositions are indicated by the form and size of the brain, to such an extent as to render it quite possible, during life, to distinguish men of desperate and dangerous tendencies from those of good dispositions.

With reference to my position as a professional man, I beg to refer your Lordship to the representatives in Parliament of this town or of the adjacent counties.

I have the honour to be, my Lord, your most obedient servant,

JOHN FIFE.

VIII. From Dr W. C. ENGLEDDUE, late President of the Royal Medical Society of Edinburgh, and Secretary to the Phrenological Society of Portsmouth.

To the Right Honourable Lord GLENELG,
Secretary for the Colonies, &c. &c. &c.

PORTSMOUTH, 24 SANDPORT TERRACE,

MY LORD,

March 23. 1836.

Having been requested to state to your Lordship my opinion regarding the subject of Sir George Mackenzie's communication, I do so with considerable pleasure, being convinced both of its benefit and *applicability*. On the latter point I can speak with some degree of certainty, having numerous opportunities of testing the truth and application of the science in that division of the Convict Establishment situated at Portsmouth. It would be impossible, in the present instance, either to enter into minutiae or bring forward proofs; but I can assure your Lordship that, as far as my experience extends, I unhesitatingly assert, that phrenologists can detect and choose from a body of criminals those of decidedly bad character, whom it would be almost impossible to retrieve, and those who, perhaps for some trivial offence, are doomed to associate with the former, and who could not only be retrieved, but, by care and better example, become valuable members of society.

This is a fact which has almost entirely escaped the observation of those legislating upon this important subject. Convicts are now almost indiscriminately embarked for the Colonies, without any regard to natural dispositions, or the effects which examples produce. They are huddled to-

gether, good, bad, and indifferent; and, after disembarkation, portioned out to the settlers, too often, as incontrovertible evidence proves, to have recourse to, if not exceed, their former depredations.

Viewing these Colonies as young communities, where it is desirable to assemble individuals of the best character, it cannot be right to inundate them with the worst of beings—those which a country protected by the justice and vigour of its laws found it impossible to control.

I could enlarge upon the ulterior effects likely to ensue upon a continuation of the present system, but the limits of a certificate forbid it.

After the preceding, I need hardly repeat that Sir G. Mackenzie's Memorial meets with my most cordial approbation; and feeling assured that your Lordship will bestow on it your serious consideration,

I have the honour to remain your Lordship's most obedient servant,

(Signed) W. C. ENGLEDDUE, M. D.

IX. From Dr JAMES INGLIS, M. R. C. S. E., and Soc. Ed. Med. Reg. Soc. Ed.; SAMUEL M'KEUR, Esq. Surgeon, Castle Douglas; the Rev. WILLIAM GLOVER, A. M. Minister of Cross-michael; Dr JOHN COLVIN, Bengal Establishment, M. R. C. S. Lond. and Mem. Med. and Phys. Soc. Calcutta.

To the Right Honourable Lord GLENELG,
Secretary for the Colonies.

CASTLE DOUGLAS, KIRKCUDBRIGHT,
MY LORD, March 22. 1836.

IF to the truth of Phrenology as a science based on observation, and borne out by facts, our testimony can be of any use, either regarding its propagation, or, through

it, the furtherance of the common good of mankind, and the lessening of human crime and misery, we unhesitatingly give it as our opinion, that the *tendencies* of the mind as it exists in this world, to cause actions either virtuous or vicious, can be discovered by the cranial development—and that whilst this holds in *every* case, it does so with much more *evident* certainty in the man of a desperate and dangerous character,—who, uneducated and unrestrained, has allowed for a length of time the lower feelings to reign over the higher faculties of his mind. Believing this, we consider that Sir George Mackenzie's proposition regarding the practical application of Phrenology in discriminating the natural dispositions of convicts, may become of the highest possible advantage to the proprietors and cultivators in the Australian colonies.

We have the honour to be, My LORD, your obedient servants,

JAMES INGLIS,
SAM^l. McKEUR,
WILLIAM GLOVER,
JOHN COLVIN.

X. From S. HARE, Esq. Proprietor and Medical Attendant of the
Retreat for the Insane in Leeds.

To the Right Honourable Lord GLENELG,
Secretary for the Colonies.

MY LORD,

LEEDS, 23d March 1836.

HAVING received a communication to the purport that Sir G. S. Mackenzie has lately presented a memorial to your Lordship representing that "Phrenology might be

beneficially applied in discriminating the natural dispositions of convicts, before being chosen for transportation," and requesting my opinion on the subject; I gladly avail myself of the opportunity of stating to your Lordship, that I have repeatedly ascertained the characters of individuals through the medium of the principles of Phrenology, and believe that very great advantages will result to the nation, from a proper application of those principles in the classification of convicts, and the improvement of prison-discipline generally.

Having occasion to employ a number of servants, I beg to be permitted to state, that I prefer choosing them by their temperaments and phrenological developments, to taking them on the characters given with them.

Ardently hoping that these views will ere long be made available, as regards the enactment of laws for the prevention and punishment of crime, both in our own and other countries, I have the honour to subscribe myself, my Lord, your Lordship's most obedient servant,

S. HARE.

XI. From Dr JAMES STEWART (A), Surgeon, Royal Navy, and Physician Extraordinary to His Royal Highness the Duke of SUSSEX.

The Right Honourable Lord GLENELG, &c. &c.

MY LORD,

PORTSMOUTH, 22d March 1836.

FOR some years past I have paid much attention to the science of Phrenology, and I am firmly of opinion that the natural dispositions are indicated by the form and

size of the brain, to such an extent as to render it quite possible, during life, to distinguish men of desperate and dangerous tendencies from those of good dispositions.

JAS. STEWART, M. D.

XII. From Dr JAMES SCOTT, LL. B., Surgeon and Lecturer to the Royal Hospital at Haslar ; Licentiate of the Royal College of Physicians of London ; Surgeon and Medical Superintendent of the Royal Naval Lunatic Asylum ; President of the Hampshire Phrenological Society, &c. &c.

The Right Honourable Lord GLENELG,
Principal Secretary of State for His
Majesty's Colonial Department, &c.
&c. &c.

ROYAL HOSPITAL AT HASLAR,
22d March 1836.

MY LORD,

I HAVE just received a circular letter from Mr Combe of Edinburgh, in consequence of a communication made to your Lordship by Sir George Mackenzie respecting the allotment of convict servants to settlers in Van Diemen's Land, in which communication Sir George recommended to your Lordship that convicts should be phrenologically examined previously to their being sent out of this country ; and, as it appears that your Lordship does not believe in the truth of Phrenology, Mr Combe is desirous of laying before you as many certificates as he can procure from medical men regarding their opinion of the science, requesting me to state in what estimation I hold it.

I therefore beg to say, that, after having for many years viewed it unfavourably by the false light of prejudice, chiefly from having read a most illogical and witty, but virulent, attack on the system, published in the Edinburgh

Review, now well known as the production of the late Dr John Gordon, who assailed it anonymously with all the shafts of ridicule, my attention was powerfully arrested by attending a course of lectures on the subject by the late amiable and highly gifted Dr Spurzheim, at Paris, and by another course of Lectures delivered by Mr Combe, in Edinburgh; and after some more years spent in careful study and observation, I became a sincere convert to the doctrines of Gall and Spurzheim.

I beg to assure your Lordship that my conversion is the result of an honest and careful examination; and as I have been for nearly ten years the medical attendant of the Lunatic Asylum in this great Hospital, my opportunities, at least, of observing have been great indeed; and a daily intercourse with the unfortunate individuals entrusted to my care and management (whose number has never been less than one hundred and thirty persons, and often many more), has firmly, because experimentally, convinced me that mental disorder and moral delinquency can be rationally combated *only* by the application of Phrenology; and that the man who treats them on any other system will much oftener be disappointed, than he who studies the manifestations of mind, and traces effects to their secondary causes, by the almost infallible beacon of Phrenology.

On this subject I could add much; but, at present, I have rather to apologize to your Lordship for having so long occupied your truly valuable time.

I have not yet published any thing, except an Inaugural Dissertation on Pneumonia, and some medical and surgical cases in various periodical journals—which I mention only in compliance with a request made in Mr COMBE's circular above referred to; but I have a mass of facts and observations bearing upon practical points.

Permit me, my Lord, to conclude, by assuring your Lordship, that, viewing you as a statesman whose acknowledged political talents and consistency shed an additional lustre over those virtues by which you are distinguished in private life, I have the honour to be, with profound respect, your Lordship's most obedient humble servant,

JAMES SCOTT.

XIII. From HEWETT COTTRELL WATSON, Esq. F. L. S., late President of the Royal Medical Society of Edinburgh; Author of the "Geography of British Plants," and other works.

To the Right Hon. Lord GLENELG,
Secretary for the Colonies.

THAMES DITTON, SURREY,
March 18. 1836.

MY LORD,

AT the request of Sir George Mackenzie, I have the honour to offer to your Lordship my humble testimony in support of the science of Phrenology; being convinced, after several years of careful attention to the subject, that it is quite possible to determine the dispositions of men by an inspection of their heads, with so much precision as to render a knowledge of Phrenology of the utmost importance to persons whose duties involve the care and management of criminals.

I have the honour to subscribe myself. your Lordship's most obedient and humble servant.

HEWETT COTTRELL WATSON.

XIV. From Sir WILLIAM C. ELLIS, M. D. Superintendent of the Lunatic Asylum for the County of Middlesex, at Hanwell.

To the Right Hon. Lord GLENELG,
Secretary for the Colonies.

LUNATIC ASYLUM FOR THE
COUNTY OF MIDDLESEX,
19th March 1836.

MY LORD,

I AM requested by Mr George Combe to address a letter to your Lordship on the utility of Phrenology. I cannot for one moment hesitate to comply with his request, and to give my strongest testimonial that, after many years' experience, I am fully convinced the dispositions of man are indicated by the form and size of the brain, and to such an extent as to render it quite possible to distinguish men of desperate and dangerous tendencies from those of good dispositions. I have been the resident physician in this establishment, where we have upwards of six hundred patients, for five years, and for thirteen years previous held a similar situation in Yorkshire, where we had two hundred and fifty. If it was necessary, I could mention a great variety of cases in the treatment of which I have found the little knowledge I possess of this interesting science of the greatest utility; and I am fully persuaded that when it is more known, and acted upon, very great advantages will result to society. I have the honour to be, My Lord, your Lordship's very obedient and humble servant,

WM. C. ELLIS.

Note by Sir W. C. Ellis to Mr Combe.—"Sir William is quite convinced that it is unnecessary for him to inform Mr Combe himself, that, residing amidst 600 lunatics, no day passes over in which the truth of Phrenology is not exemplified."

XV. From Dr DISNEY ALEXANDER, late one of the Physicians to the Wakefield Dispensary and the Pauper Lunatic Asylum, Lecturer on Phrenology, Author of an Essay on the best Means of preserving Health, of a Treatise on the Croup, and of Lectures on the Internal Evidences of Christianity.

LUPSET COTTAGE, WAKEFIELD,
March 20. 1836.

I hereby certify, that I consider it as proved beyond all reasonable contradiction, that "the natural dispositions are indicated by the form and size of the brain, to such an extent as to render it quite possible, during life, to distinguish men of desperate and dangerous tendencies from those of good dispositions;" and that Phrenology might be beneficially applied in discriminating the natural dispositions of convicts, before their being chosen for transportation.

DISNEY ALEXANDER, M. D.

XVI. From GEORGE MARTELL, Esq. Member of the College of Surgeons, London, Surgeon to the Jail of Portsmouth, and Senior Surgeon to the Dispensary, &c. &c.

To the Right Hon. Lord GLENELG,
Secretary for the Colonies, &c. &c. &c.

MY LORD,

PORTSMOUTH, March 24. 1836.

Having had frequent opportunities of seeing the examination of individuals phrenologically, I am of opinion that their dispositions may be fully known by external configuration, size, &c.; and that such examinations would greatly facilitate the classification of prisoners.

I remain, your Lordship's most obedient servant,

GEORGE MARTELL.

XVII. From JAMES SIMPSON, Esq. Advocate, City Assessor of Edinburgh, and Author of "Necessity of Popular Education as a National Object."

The Right Hon. Lord GLENELG.

MY LORD,

EDINBURGH, 25th March 1836.

Referring to the experiment on phrenological principles proposed by Sir George Mackenzie, for ascertaining the distinctive characters of a number of convicts, I respectfully beg to offer to your Lordship my humble opinion, founded on fifteen years' experience, that the test will be entirely satisfactory, and shew that character may be ascertained from cerebral development, as indicated externally on the head.

I have the honour to be, my Lord, your obedient servant,

JAMES SIMPSON.

XVIII. From HENRY WITHAM, Esq. of Lartington, Yorkshire, Member of the Geological Society of London, and Royal Society of Edinburgh, &c. &c.; and Author of a Work on "The Internal Structure of Fossil Vegetables."

The Right Hon. Lord GLENELG.

MY LORD,

LARTINGTON, Co. YORK, 27th March 1836.

With reference to Sir Geo. Mackenzie's suggestion, that the heads of convicts should be examined, with a view to ascertaining their natural dispositions before transporting them to New South Wales, I beg leave to certify, that, from having studied the science of Phrenology during several years of my residence in Edinburgh, I am convinced of the practicability of accomplishing, by means of Phrenology, the object in view. The differences in point

of form between the brains of men of naturally good and men of naturally bad dispositions, are so palpable, even during life, that a moderate share of attention is sufficient to discover them.

I have the honour to be, my Lord, your obedient humble servant,

HENRY THORNTON MAIRE WITHAM.

XIX. From Dr FRANCIS FARQUHARSON, Fellow of the Royal College of Surgeons of Edinburgh, and Vice-President of the Phrenological Society.

The Right Hon. Lord GLENELG.

MY LORD,

EDINBURGH, 28th March 1836.

In consequence of a communication from Sir G. S. Mackenzie, Bart., regarding the phrenological experiment proposed by him in a memorial to your Lordship, I beg to state my firm conviction that it would completely answer the object in view. This belief does not rest upon theoretical grounds, but is the result of an extensive experience during the last ten or twelve years.

I have the honour to be, my Lord, your faithful and obedient servant,

FRAS. FARQUHARSON, M.D.

XX. From Dr S. E. HIRSCHFELD, Bremen.

To the Right Hon. Lord GLENELG, &c. &c.

BREMEN, 22d March 1836.

I hereby certify, that I consider it practicable to distinguish between men of desperately bad dispositions, and men of good dispositions, by examining their heads during life; and that such knowledge may be successfully em-

ployed in discriminating dangerous criminals from those who are not destructive or blood-thirsty.

I state this opinion from my own experience.

S. ED. HIRSCHFELD, M. D.

XXI. From the SURGEONS to the NEWCASTLE INFIRMARY, and
Fifteen other Gentlemen of that Town.

To the Right Hon. Lord GLENELG,
Secretary for the Colonies.

NEWCASTLE-ON-TYNE, 17th March 1836.

WE the undersigned take the liberty of addressing this communication to your Lordship, for the purpose of explaining that we are of opinion that the natural dispositions are indicated by the form and size of the brain, to such an extent as to render it possible, during life, to distinguish men of desperate and dangerous tendencies from those of ordinary dispositions: That if this opinion be correct, it would be highly beneficial to use this means of discriminating the natural dispositions of convicts sent out to the colonies, and many of whom are let to the cultivators as servants: That with the view of ascertaining the possibility of employing these means with advantage, it would be very desirable that a given number of convicts of marked characters be selected, and their dispositions put down in writing by the governor and chaplain of one or two of the public penitentiaries or prisons; that their heads be submitted to the inspection of two or three experienced Phrenologists, who should write down inferences concerning their mental qualities; and that, in presence of competent judges, the two written accounts should be compared: That if the result should be found to accord with the opinion we have

taken the liberty of laying before your Lordship, we conceive a valuable service might be conferred on the colonists, by paying attention to this means of regulating the selection of servants.

JOHN BAIRD, Senior Surgeon to the Newcastle Infirmary.

T. M. GREENHOW, Surgeon to the Newcastle Infirmary, &c.

WM. HUTTON, F. G. S., Member of the Geological Society of France, &c. &c., and Secretary of the Natural History Society of Northumberland, Durham, and Newcastle-on-Tyne.

JNO. BUDDLE, V. P. of the Natural History Society of Newcastle-upon-Tyne, F. G. S., &c.

ROBT. WM. SWAN.

J. CARGILL, M. D.

WILLIAM MORRISON, Member of the Royal College of Surgeons of London, &c.

ANTHR. NICHOL.

WILLIAM NEIHAM, Member of the Royal College of Surgeons, London, of the Royal Medical Society, Edinburgh, &c. &c. &c.

JOHN THOMSON, C. M., Member of the University of Glasgow.

D. MACKINTOSH, Surgeon to the Newcastle Lunatic Asylum, &c.

J. C. BRUCE, A. M.

ROBERT CURRIE.

JOHN FENWICK, Alderman of Newcastle-upon-Tyne.

R. B. BOWMAN.

M. H. RANKIN, Solicitor, Newcastle, Author of "Present State of Representation in England and Wales."

WM. CARGILL.

XXII. From W. A. F. BROWNE, Esq. Medical Superintendent
of Montrose Lunatic Asylum.

MONTROSE, March 15. 1836.

I hereby certify, on soul and conscience, that I have been acquainted with the principles of Phrenology for upwards of ten years ; that from proofs based upon physiology and observation, I believe these to be a true exposition of the laws and phenomena of the human mind ; that during the whole of the period mentioned I have acted on these principles, applied them practically in the ordinary concerns of life, in determining and analyzing the characters of all individuals with whom I became acquainted or connected, and that I have derived the greatest benefit from the assistance thus obtained. But although the utility of the science be most apparent in the discrimination of the good from the bad, those of virtuous and intellectual capabilities from the brutal and imbecile, it is not confined to this. In the exercise of my profession, I have been enabled, by the aid of Phrenology, to be of essential service in directing the education of the young as a protection against nervous disease, and in removing or alleviating the various forms assumed by insanity in the mature. For several years I have devoted myself to the study of mental diseases, and the care of the insane. During my studies at Salpêtrière, Charenton, &c. in Paris, I was able to derive great additional information from my previous knowledge of Phrenology ; and now that I have been entrusted with a large asylum, I am inclined to attribute any little success that may have attended my efforts to ameliorate the condition of those confided to my charge, to the same cause. I may add, that I was *converted* from a confidence in the accuracy of the philosophy of the schools to a belief in Phrenology ; that I did

not adopt its doctrines on the authority of my teachers, but tested their truth by repeated experiment; that I have since taught them to large bodies of my countrymen, and feel fully convinced that until they be recognised and acted upon generally, no just conclusion can be drawn as to human character, nor as to the administration of punishments for the improvement or rewards for the encouragement of mankind.

W. A. F. BROWNE, Surgeon.

XXIII.—From Dr C. OTTO, Professor of Materia Medica and Forensic Medicine in the University of Copenhagen; Physician to the Civil Penitentiary; Member of the Royal Board of Health, the Royal Medical Society at Copenhagen, and thirteen other Medical Societies abroad; Editor of the Danish medical journal “*Bibliothek for Lieger,*” &c. &c.

To the Right Hon. Lord GLENELG,
Secretary for the Colonies, &c. &c.

COPENHAGEN, *March 25. 1836.*

I hereby certify, that, from my own observation and experience, I consider it quite possible to distinguish men of strong animal propensities, who, when left uncontrolled by authority, or when excited by intoxication, would be dangerous to society, from men of mild dispositions, by examining their heads during life. I farther certify, that I have practically applied this method of distinguishing the natural dispositions of men, and found it uniformly successful.

C. OTTO, M. D.

Dr Otto adds, in a letter to Mr Combe, inclosing the above:—“As physician to the penitentiary, nobody can be

more convinced than I of the truth of the certificate. In fact I reap the greatest advantage from Phrenology in treating the criminals in my hospital, as I vary my moral treatment of them according to the form of their heads—some ones necessarily requiring severity, others mildness; and I have often, without any failure, told the inspector beforehand which criminal was to be considered as dangerous, and which one might be trusted as quiet and benevolent. The examination of the organs of Secretiveness and Conscientiousness aids me extremely much in detecting simulations of diseases.”

XXIV. From the Honourable DOUGLAS GORDON HALYBURTON,
M. P. for Forfarshire, to George Combe, Esq.

MY DEAR SIR,

LONDON, *March 26. 1836.*

You will, I know, excuse my not having, four or five days ago, sent an acknowledgment of the favour of your letter of the 14th instant, covering a copy of your printed circular of the 10th, on the subject of Sir George Mackenzie's communications to Lord Glenelg respecting *Australian convicts*, and his Lordship's remarks on the same.

I am afraid that, in asking *my* testimony on this phrenological question, yourself and Sir George attribute an importance to it, which it can scarcely deserve, as adding sensibly to the weight of phrenological authority, of which your circular must long since have put you in possession. However, if the attention which I have given to this most important and interesting science, during a period now of twenty years—the personal acquaintance I had with Drs Gall and Spurzheim on the Continent—the friendship with

which our latter departed friend was pleased to honour me—and my having let slip no opportunity, whether in Paris, London, Edinburgh, or Glasgow, to derive pleasure and instruction from his writings, lectures, and private conversation—and, lastly, let me add with no intention whatever to flatter, the instruction and improvement I have derived from your own writings, lectures, and conversation, combined with those of your brother Dr Andrew Combe—if these circumstances, all well known to you, should lead yourself or Sir George Mackenzie to believe that my authority upon this subject ought at least to carry some weight with it, then my testimony, such as it may be, is entirely at your service.

The point, I think, in your circular letter, upon which you desire the opinion of competent judges is this,—“Whether the natural dispositions are indicated by the form and size of the brain, to such an extent as to render it quite possible, during life, to distinguish men of desperate and dangerous tendencies from those of good dispositions.”

Before I give *my* answer to this question, allow me, dear Sir, to prefix a few remarks. It is well known, I am sure, to us, that the skill of the well-instructed and *practised* phrenologist, might safely be put to a much more severe test than any that is implied in the above question. Instead of taking the *extremes* of human character, he might be required to read and to discriminate amongst that intermediate class which makes up the great bulk of mankind in civilized life; where the qualities of the *animal man* and the *moral and religious man* are mixed up together, in all sorts of proportions,—the combination in nineteen cases out of twenty in civilized life, (and in various *grades* of society), being such as to give rise to those *apparent* contradictions in men's characters, which are perpetually ob-

truding themselves upon every one's notice ; so that it is no exaggeration to say, that the great mass of society whom one meets at every turn, including *all ranks*, spend their whole lives in a sort of *rotation* (palpable or more covert) of sinning and repenting—now obeying all or any of their propensities—the animal man,—now listening to—checked—brought up, by their moral and religious nature. We know how all this can be most satisfactorily explained by the demonstrated truths and doctrines of Phrenology. But in truth, they are the same phenomena which are pointed at by moral and religious writers and preachers (the latter too often in language unnecessarily quaint, and a misplaced adoption of Scriptural terms), when they talk of men “ walking after the flesh, or after the spirit,”—that “ the *natural* man cannot please God,” &c. &c. &c. All this, I take it, merely means that the lower part of man's nature, the animal (which God and religion intended, and I doubt not have provided for the ultimate fulfilment of the intention), should serve and obey the higher, the moral and spiritual part,—takes the lead, and, instead of *serving*, presumes to dictate and domineer ; thus producing all the confusion, and much of the misery, of a true *servile war*. Now, I would ask *you* the question, Can the skilful phrenologist, in such *mixed* cases as I have described, point out, from an inspection of the brain, as indicated by the exterior head, the *character* of the individual ? I think you will answer *that he can*. At least he can enumerate the *forces* which are enlisted on either side, though, being no charlatan, and not pretending that he is a *prophet*, he will not venture to predict what specific *action*, or *course of action* for a time, will result, under certain circumstances, from the antagonist motives which the man carries within him. In illustration of what I have hurriedly above been intending to

say, I would ask you again, whether there are not *scores* of examples in all the *phrenological capitals* of Europe, where (let us take one example) parents have hesitatingly, tremblingly, half believing, half afraid, taken their children to be examined (for their characters, &c. &c. &c.) by the most reputed phrenologist they could hear of,—submitting the heads of the little creatures to the eyes and fingers—the *wand* of the *conjurer*. If he be really an expert and well-instructed *conjurer*, he immediately detects the general outlines of the children's (not infants') characters. But he goes much farther than this,—he examines and *weighs*, he balances the *forces* of the different qualities, intellectual, moral and animal; and in almost every instance (supposing him always to be a *good conjurer*), he fairly and fully delineates the *character*. So the poor parents *stand aghast*; propensities, sentiments, passions, virtues and vices, which they vainly imagined could be known only to themselves, or the immediate inmates of the house or the nursery, are brought to the surface, under the wicked scrutiny of the phrenological *doctor*. The sequel of this proceeding very commonly is, that he is consulted by the anxious parents respecting the education, the general management, and ultimately the choice of *professions*, for the several children; and undoubtedly it would be well for the family, if the counsels of a really *judicious* phrenological adviser, regarding the above mentioned points, were attended to and acted upon. If the statements I have been making, and the opinion I have given respecting those classes (far removed from the two *extremes*), which make up the great mass of human society, be true, there can be no doubt how I must answer the query transcribed above from your circular letter. I consider it as proved to demonstration, that “the natural dispositions are indicated by the form and size of

the brain to such an extent, as to render it quite possible during life, to distinguish men of desperate and dangerous tendencies from those of good dispositions."

I shall conclude this letter with a few observations, naturally arising out of the subject. We know that phrenological knowledge and skill, have in very many instances been rendered most useful in the business of education, as respects both private families and public schools, where happily the masters or directors could avail themselves of such assistances, in conducting the moral and the intellectual discipline of the pupils. We know further, that medical science and art have been much indebted to Phrenology, in the case more especially of several institutions for the reception and treatment of patients labouring under various forms and degrees of mental alienation. Of the latter, the instances of the Lancastrian Asylum, and that for the reception of paupers of the County of Middlesex, near the metropolis, at present occur to me, and I believe there are many similar examples both in England and Scotland. Can it be doubted, then, that Phrenology is capable of furnishing resources of equal magnitude, and to an extent not easily appreciated, in the classification and the discipline of those unhappy persons, whose crimes, in various degrees, have brought them under the dominion of criminal jurisprudence?

I might, my dear Sir, have answered your letter much more laconically than I have done, and possibly an apology is due from me, for having been too *diffuse*; but the subject is one in which I take a great interest, and I trust I shall be forgiven.

I remain, with much respect, yours faithfully,

D. G. HALLYBURTON, M. P.

XXV. From Dr PATRICK NEILL, F.R.S. E. & F. L. S. London.

Right Hon. Lord GLENELG.

MY LORD,

CANONMILLS COTTAGE,
31st March 1836.

IN consequence of a suggestion by Sir George Mackenzie, I beg leave to mention to your Lordship, that even before the first visit of Dr Spurzheim to Edinburgh, I was satisfied that the leading doctrines of Gall were founded in truth, because the conviction was forced upon me by my own observations made before that visit: I mean that certain convolutions or portions of the brain are peculiarly the organs of certain faculties and propensities; that size is generally indicative of vigour; and that, in many cases, the relative size of the organs can be distinguished by external examination.

Knowing the powerful influence of surrounding society in encouraging or restraining, I have never given an opinion as to the probable actions of an educated individual, and indeed have uniformly declined examining heads among my friends, even when pressed to do so. But I have, on various occasions, been influenced by my private observations of development, and can most conscientiously say that I have constantly seen more and more reason to trust, with confidence, to such observations. My abstaining from any public practice of Phrenology ought not, therefore, to lessen the weight of my testimony.

The organs of some faculties and propensities are much more easily recognised externally than those of others; and when they are *strongly* marked, no Phrenologist (I would say no one who has ever attended to the subject, although no adept), can possibly be mistaken in drawing useful conclusions. In the case of convicts ordered for transportation, for examine, he could undoubtedly point out the probably

treacherous and the probably mischievous ;—so that, during the voyage, these might be more strictly guarded, and separated as much as possible from those who were likely to prove conscientious and benevolent ; and, on arrival at their place of destination, that the former might be kept at work under public surveillance, and only the latter hired out to settlers.

To shew that I ought not to be entirely unqualified for giving an opinion, your Lordship will excuse me for mentioning that in my youth I studied for three years with a view to the medical profession ; that I attended especially to Anatomy, and saw the human brain *dissected* by Monro secundus, and *developed* by Spurzheim (for the latter scarcely used the scalpel) ; that I have for upwards of twenty years been Secretary to the Wernerian Natural History Society ; and that I have, all my life, been attached to the study of natural history.

I am, my Lord, your Lordship's very obedient servant,
PAT. NEILL.

XXVI. From Dr JOHN ELLIOTSON, F. R. S., President of the Royal Medical and Chirurgical, and of the London Phrenological Societies ; Professor of the Principles and Practice of Medicine and of Clinical Medicine, and Dean of Faculty, in the University of London ; Senior Physician of the North London Hospital ; Fellow of the Royal College of Physicians of London ; formerly Physician to St Thomas's Hospital, and President of the Royal Medical Society of Edinburgh, &c. &c. &c.

CONDUIT STREET, LONDON,

To the Right Hon. Lord GLENELG.

April 7. 1836.

Dr ELLIOTSON presents his compliments to Lord Glenelg, and begs to say, that, at the desire of Sir George

Mackenzie, he takes the liberty of communicating to his Lordship his thorough conviction of the truth of Phrenology. He has not passed a day for the last twenty years, without bestowing at least some thought upon it; and the vast number of facts which he has witnessed, without any certain exception as to any of the chief points, convince him that it is as real a science as Astronomy or Chemistry. Nor does he know any branch of science more important, as it is interwoven with morals, religion, government, education, and in short with every thing that regards human or brute nature.

XXVII. From Dr JOHN SCOTT, Fellow of the Royal College
of Surgeons, Edinburgh.

To Sir GEORGE MACKENZIE, Bart.

EDINBURGH,

31. NORTHUMBERLAND STREET,

DEAR SIR GEORGE,

10th April 1836.

HAVING been informed by Mr Combe of the nature of your correspondence with Lord Glenelg, relative to the proposed experiment as to a number of convicts to be sent to New South Wales, I have much satisfaction in stating my conviction of the very important advantages to be derived from it, in shewing the practical usefulness of the science of Phrenology; of the truth of which I have been fully satisfied, from the period in which I studied it under Dr Spurzheim in Paris, fifteen years since.

With sincere hopes that Lord Glenelg may be induced to accede to your benevolent wishes, I remain your obedient servant,

JOHN SCOTT M. D.

XXVIII. From JOSEPH VIMONT, M. D., of the Faculty of Paris,
Honorary Member of the Phrenological Societies of Paris,
London, Edinburgh, Boston, &c.

To the Right Hon. Lord GLENELG,
Secretary for the Colonies.

MY LORD,

PARIS, 30th March 1836.

Sir G. S. Mackenzie, Bart., in applying to your Lordship for permission to examine the heads of a number of convicts, in order to appreciate their mental faculties, might have dispensed with having recourse to the testimony of foreign physiologists. In the case proposed by the honourable Baronet, the experiment cannot fail of being crowned with success, if made (as I do not doubt it will be), by phrenologists deeply versed in the theory and practice of Phrenology. The observations made by the founder of the science, Dr Gall, in the prisons of Berlin and Spandau, those which have been repeated in all the civilized world, to which I may add those which I have made in three of the principal prisons of France, viz. Caen in Normandy, Bicêtre near Paris, and Melun twelve leagues from Paris, have convinced me that it is not only possible to appreciate the relation existing between the volume of the head and the energy of the mental faculties, but that one may still, by their examination, be able to establish among the convicts several classes, the discrimination of which would be very advantageous to society and for the convicts themselves. The work of Dr Gall, the Phrenological Journal of Edinburgh, the large work which I have lately published, finally, the phrenological museums, abound with incontestible facts proving that the mental faculties of men may be appreciated in a healthy state by the examination of

their heads. To deny the truth of those facts, is to put in doubt the existence of the best established phenomena.

I have, my Lord, the honour to be your humble servant,

J. VIMONT.

XXIX. From Dr WILLIAM GREGORY, F. R. S. E., Fellow of the Royal College of Physicians of Edinburgh, Member and formerly President of the Royal Medical Society, Corresponding Member of the Société de Pharmacie and of the Phrenological Society of Paris, and Secretary to the Phrenological Society of Edinburgh.

To the Right Honourable

Lord GLENELG, &c. &c. &c.

MY LORD,

EDINBURGH, 11th April 1836.

Having been requested to state my opinion of the proposition made to your Lordship by Sir G. S. Mackenzie, Bart., in reference to a phrenological examination of convicts about to be transported, with a view to their classification according to their natural dispositions, so as to avoid many inconveniences to which their masters in the penal settlements are now liable, I beg to state to your Lordship, that, for some years past, I have studied the science of Phrenology, and have the firm conviction that, in the hands of properly qualified observers, this science affords the means of ascertaining with certainty the natural dispositions and talents of such individuals as possess healthy brains.

My conviction is founded on a careful study of the works of the most distinguished phrenologists, confirmed by the repeated examination of several extensive collections, in which are deposited the heads of very numerous criminals of all shades of character. I have also had very frequent

opportunities of witnessing the facility and certainty with which character is discriminated by practised phrenologists in the case of living persons. It would be superfluous to point out the advantage of such a power, especially in the case of convicts.

Your Lordship's official avocations have probably prevented you from devoting your attention to the subject of Phrenology ; but I may be permitted to express my belief that your Lordship could not examine it carefully without being satisfied of its importance to mankind, as being the only consistent and practical philosophy of mind yet offered to the world.

And when those who have carefully studied Phrenology, and become convinced of its truth, offer, as Sir G. S. Mackenzie has done, to put it to a practical test, which may be highly advantageous, and cannot possibly be hurtful, it is the duty of your Lordship, and of all those who have it in their power to authorize the experiment, not to pass by or neglect a proposition so important, merely for want of that faith in the truth of Phrenology, which no one can reasonably expect to possess, unless he have made himself acquainted with the science, and the evidence on which it is supported.

I have the honour to be, my Lord, your Lordship's most obedient servant,

WILLIAM GREGORY.

XXX. From Dr ROBERT HUNTER, Professor of Anatomy, &c. in the Andersonian University, Glasgow.

To the Right Honourable Lord GLENELG.

MY LORD,

GLASGOW, 11th April 1836.

AT the request of Mr Combe, I have taken the liberty of addressing your Lordship on the subject of

Phrenology. For more than thirteen years I have paid some attention to the subject, and I beg to state, that the more deeply I investigate it, the more I am convinced in the truth of the science. I have examined it in connection with the anatomy of the brain, and find it beautifully to harmonise. I have tested the truth of it on numerous individuals, whose characters it unfolded with accuracy and precision. For the last ten years I have taught Phrenology publicly in connection with Anatomy and Physiology, and have no hesitation in stating, that, in my opinion, it is a science founded on truth, and capable of being applied to many practical and useful purposes.

I have the honour to be, my Lord, your Lordship's very obedient servant,

ROBERT HUNTER, M. D.

XXXI. From ROBERT MACNISH, Esq. Member of the Faculty of Physicians and Surgeons of Glasgow, and Author of "The Philosophy of Sleep," &c.

To the Right Honourable Lord GLENELG.

MY LORD,

GLASGOW, 11th April 1836.

HAVING been applied to, by Sir GEORGE MACKENZIE, to state my opinion with respect to the possibility of detecting the characters of convicts by an examination of their heads on Phrenological principles, I have no hesitation in declaring my perfect conviction, that, in very many cases, the dispositions of these individuals may, by such a process, be discriminated with remarkable accuracy.

The form of head possessed by all dangerous and inveterate criminals is peculiar. There is an enormous mass of brain behind the ear, and a comparatively small portion

in the frontal and coronal regions. Such a conformation always characterizes the worst class of malefactors; and wherever it exists we find an excessive tendency to crime. This fact I have had ample opportunities of verifying; and, indeed, no person who compares criminal heads with those of persons whose natural dispositions are towards virtue, can entertain the slightest doubt upon the subject.

I have the honour to be, my Lord, your Lordship's most obedient servant,

R. MACNISH.

XXXII. From RICHARD POOLE, M. D., Fellow and Joint Librarian of the Royal College of Physicians of Edinburgh; Author of various Articles in Periodical Journals and the *Encyclopædia Edinensis*,—as *Language, Philology, Mathematics, Mind, Philosophy*, and *Education*, the last of which has been republished separately.

EDINBURGH, 12th April 1836.

During several years, actively employed, I have found the principles of Phrenology available in very important duties,—more especially in the treatment of Insanity, to which, as a professional man, my attention has been greatly directed; and I feel warranted, by long study and observation, in maintaining the opinion, that it is practicable to distinguish individuals having naturally very low and dangerous characters, from others who are naturally well constituted and disposed,—by examining and comparing their heads during life, according to the principles of Phrenology.

RICH^d. POOLE.

XXXIII. FROM CHARLES MACLAREN, Esq. Editor of the *Scotsman*.

To the Right Honourable Lord GLENELG,
Secretary for the Colonies, &c.

EDINBURGH, 9th April 1836.

IN reference to a correspondence between your Lordship and Sir George Mackenzie, on the propriety of subjecting convicts to a phrenological examination, I beg leave to state, that I have paid some attention to Phrenology during the last seven years—that I believe its principles to be substantially true, and am convinced that the natural dispositions are indicated by the form and size of the brain to such an extent as to render it quite possible, during life, to distinguish men of desperate and dangerous tendencies from those of good dispositions.

Perhaps I may be allowed to add, that my first impressions in favour of Phrenology were produced by the explanation which its doctrines afford of the phenomena of mind, and the relations of man to the external world—an explanation more clear, consistent, and satisfactory, in my opinion, than can be derived from any system of philosophy now taught in this country.

I have the honour to be, my Lord, your Lordship's most obedient servant,

CHARLES MACLAREN,
Editor of the Scotsman Newspaper.

XXXIV. From **WILLIAM WILDSMITH, Esq.** Member of the Royal College of Surgeons, London, and of the Council of the Leeds Philosophical and Literary Society; and Author of "An Inquiry concerning the relative Connexion which subsists between the Mind and the Brain."

To the Right Honourable Lord GLENELG.

MY LORD,

LEEDS, *April 16. 1836.*

HAVING been informed that Sir G. S. Mackenzie, Bart. has made proposals for applying the tests afforded by Phrenology for the discrimination of individual character in convicts subject to transportation, with a view to their better classification, I beg most sincerely to add my humble testimony in approval of the plan suggested, with the confident assurance that the result will prove highly valuable to the parties most interested, and prove to the entire satisfaction of any who may doubt it, the practical application of Phrenology to the common affairs of life. Nothing, I am convinced, can be easier than the discrimination of the naturally and the casually vicious, by the aid of Phrenology; and, in the case in question, I doubt not of its complete success if a trial be permitted.

I have the honour to remain, your Lordship's most obedient servant,

WM WILDSMITH.

XXXV. From Mr WILLIAM BREBNER, Governor of the County and City Bridewell, Glasgow.

TO GEORGE COMBE, Esq.

COUNTY AND CITY BRIDEWELL,
Glasgow, 18th April 1836.

DEAR SIR,

ABOUT two thousand persons pass through this establishment yearly, and I have had the charge for upwards of twenty-five years. During that period, and long before I heard any thing of Phrenology, I was often struck with the extraordinary shape of the heads of most of the criminals. When Dr Spurzheim visited this city, I attended his lectures; and although I do not yet pretend to have any thing like phrenological knowledge, I have no hesitation in saying, that the most notoriously bad characters have a conformation of head very different from those of the common run of mankind.

I may be allowed to add, that Dr Spurzheim, yourself, and many others, professing and believing in the science, who have visited this prison, have described the character, and told the leading propensities of the inmates, in a very remarkable manner. I am, &c.

WILLIAM BREBNER, Governor.

XXXVI. From H. A. GALBRAITH, Esq. Surgeon to the Glasgow Royal Lunatic Asylum.

GLASGOW ROYAL LUNATIC ASYLUM,
19th April 1836.

MY DEAR SIR,

SITUATED as I am in the midst of a wide field for observation, more particularly in regard to disordered

mental manifestations, I have been for several years past led to compare these with the phrenological development of the individuals in whom they appeared ; and from the result of numerous and well-marked instances, which have not only been known to me during a state of morbid activity, but from authentic accounts of the previous mental indications, I have not the least hesitation in declaring my firm belief in the general doctrines of Phrenology.

It gives me much pleasure on this occasion, and is but an act of justice, to add, that when Dr Spurzheim was in this city some years ago, he visited this Institution, and examined several of the most remarkable heads of the then inmates ; and, had I been more careless and sceptical than I really was, the correctness and facility with which his inductions were made from cerebral development, must have arrested my attention, and convinced me of the reality of the science he professed. It is also no small confirmation of the doctrine, as well as proof of its utility, that exactly the same conclusions were drawn from the same heads, when submitted to you a few days ago at your visit here. It therefore can be no chance or random opinion, but one evidently founded on a common principle, that enables the experienced Phrenologist, at the distance of years, not only correctly to delineate the character and conduct of individuals, but strictly to coincide with that formerly given. Although I have as yet no pretension to the name of an experienced Phrenologist, yet be assured my faith in the verity of Phrenology is such as to induce me to cultivate it with more care than I have hitherto done, and it will be no small gratification if I can add with benefit to those under my charge. I am, My Dear Sir, yours very faithfully,

H. A. GALBRAITH.

GEORGE COMBE, Esq.

XXXVII. From GEORGE SALMOND, Esq. Procurator-Fiscal of Lanarkshire; WALTER MOIR, Esq. Sheriff-Substitute of Lanarkshire; and Mr D. M'COLL, Governor of Glasgow Jail.

To GEORGE COMBE, Esq.

SHERIFF'S CHAMBERS,
GLASGOW, 22d April 1836.

DEAR SIR,

A FEW days ago Sheriff Moir having told me of your intention to examine phrenologically some of the criminals in Glasgow jail, I expressed a wish to be present, in order that I might have a practical test of the system, and ascertain whether your inferences of character should accord with what was privately and officially known of them by myself; and Mr Moir having kindly honoured me with an introduction to you, I had the gratification of attending your examination of a number of these persons, and of hearing with sincere interest the accurate conclusions you arrived at on each of them.

Never before having witnessed such an operation, and expecting that, after a tedious process of examination, taking notes, and comparing and calculating results, something of an oracular generality of character should be announced, I was very much pleased to observe, that while your examination of each did not average a minute, you instantly, and without hesitation, stated the character, not generally, but with specialties of feelings and propensities, surprisingly justified by what I knew of them; and being aware that you had no access to them, nor means of knowing them previously, as they were taken at the moment promiscuously from numbers of the other criminals, I was at once led to a conviction of the truth of the science, and to see eminent advantages of such knowledge to society, and more immediately in regard to criminal jurisprudence and practice.

Of the instances of your observation, suffer me to men-

tion a few, which at the time occurred to me as peculiarly convincing.

The first man you examined you pronounced "a thief, reckless and dangerous, who, for instance, if under the influence of liquor, would not hesitate to murder or destroy all around him." Now this fellow has for years travelled about the country with a horse and cart, selling salt and trifling articles, and has acquired the character of a masterful thief, and just now stands indicted with a cruel assault on, and highway robbery of, a poor labourer, of all his hard earnings last harvest.

Another, you observed, had "a fine intellect, and was likely to have been guilty of swindling;" and the accuracy of this observation on a *painter*, who is indicted for *falsehood, fraud, and wilful imposition, or swindling*, is self-evident.

A third, whom you pronounced "a cunning, *daring*, and decided thief," is an incorrigible thief, who for years has, in the most concealed and adroit manner, headed a gang of housebreakers, and is at present indicted for highway robbery, committed by his savagely knocking down with a heavy stob a poor man, who was almost killed on the spot. Private information leads me to understand that he has been party to another crime, of a nature equally, if not more, *daring* and *cruel*.

A fourth you described to be "a depraved and most dangerous man." He is a crony of the man last noticed; has long been a thief, and one of the most noted corpse-lifters while subjects were bought by the medical schools; and he is said to have been concerned with the man last mentioned in the atrocious crime alluded to at the close of the observations as to him.

A fifth, whom you judged to be "a sly thief, who, with a meek and specious aspect, possessed daring even to cruelty," is a fellow who is by trade a thief, adroit and cun-

ning, and who has often attacked and escaped from the officers of justice. He lately stole in broad day-light on the streets of Glasgow a handkerchief from a gentleman's pocket, and ran off. Being promptly pursued, he, as a decoy, threw from him the napkin. Being after a race overtaken, he leapt into a dung-pit, whither the gentleman could not think of following him, but stood watching him till police he sent for arrived. On this the fellow in the most fawning manner craved sympathy, and finding this did not move the gentleman's purpose, he suddenly sprung out, and, on being seized, made a desperate struggle, bit severely the gentleman's hand, and, by his force and violence, might soon have got off had not the police arrived.

The accuracy of your conclusions has deeply impressed me with the benefit which would accrue to society from the application of such investigations towards the better classification of criminals confined before and after trial, to the selection and treatment of convicts, and even to the more certain identification of such criminals as might effect their escape from justice or confinement.

With much regard, believe me to be, dear Sir, yours most faithfully,

GEO. SALMOND,
Pror.-Fiscal of Lanarkshire.

We were present on the occasion of Mr Combe's visit to the Jail of Glasgow, and testify to the perfect accuracy of Mr Salmond's representation of what happened. Mr Combe's inferences of the characters of such prisoners as he then examined, were most accurate, and never could have been the result of chance.

WALTER MOIR,
Sheriff Subst. of Lanarkshire.

D. M'COLL,
Governor of Glasgow Jail.

XXXVIII. Account of Mr COMBE's Phrenological Examination of Heads of Criminals in the Jail of Newcastle-on-Tyne, October 1835. Extracted from the Phrenological Journal, vol ix. p. 524.

On Wednesday 23th October, Mr Combe, accompanied by the following gentlemen, visited the jail : viz. Dr George Fife, assistant-surgeon to the jail (who is not a phrenologist) ; Benjamin Sorsbie, Esq., alderman ; Dr D. B. White ; Mr T. M. Greenhow, surgeon ; Mr John Baird, surgeon ; Mr George C. Aitkinson ; Mr Edward Richardson ; Mr Thomas Richardson ; Mr Wm. Hutton ; and Captain Hooke.

Mr Combe mentioned, that his chief object was to shew to such of the gentlemen present as had attended his lectures in Newcastle, the reality of the fact which he had frequently stated, that there is a marked difference between the development of the brain in men of virtuous dispositions, and its development in decidedly vicious characters, such as criminals usually are ; and that the moral organs generally are larger in proportion to the organs of the animal propensities, in the former than in the latter : and he requested that a few striking cases of crime might be presented, and that the heads of the criminals should be compared with those of any of the gentlemen present indiscriminately.

This was done ; and Dr Fyfe suggested that it would be further desirable that Mr Combe should write down his own remarks on the cases, before any account of them was given, while he himself should, at the other side of the table, write down an account of their characters according to his knowledge of them ; and that the two statements should then be compared. Mr Combe agreed to this request ; and the following individuals were examined.

P. S., aged about 20.—*Mr Combe* wrote as follows : Anterior lobe well developed ; intellectual powers are considerable. The organ of Imitation is large, also Secretiveness ; Acquisitiveness is rather large. The most defective organ is Conscientiousness. Benevolence and Veneration are large. The lower animal organs are not inordinate. My inference is, that this boy is not accused of violence ; his dispositions are not ferocious, or cruel, or violent : he has a talent for deception, and a desire for property not regulated by justice. His desires may have appeared in swindling or theft. It is most probable that he has swindled : he has the combination which contributes to the talents of an actor.—*Dr Fife's Remarks* : A confirmed thief ; he has been twice convicted of theft. He has never shewn brutality ; but he has no sense of honesty. He has frequently attempted to impose on Dr Fife ; he has considerable talent ; he attended school, and is quick and apt ; he has a talent for imitation.

T. S., aged 18.—*Mr Combe* wrote : Destructiveness is very large ; Combativeness, Secretiveness, and Acquisitiveness, are large ; intellectual organs fairly developed ; Amativeness is large ; Conscientiousness rather moderate ; Benevolence is full, and Veneration rather large. This boy is considerably different from the last. He is more violent in his dispositions ; he has probably been committed for assault connected with women. He has also large Secretiveness and Acquisitiveness, and may have stolen, although I think this less probable. He has fair intellectual talents, and is an improveable subject.—*Dr Fife's Remarks* : Crime, rape * * * * No striking features in his general character ; mild disposition ; has never shewn actual vice.

J. W., aged 73.—*Mr Combe's Observations* : The coro-

* The particular observations are not proper for publication.

nal region is very defective ; Veneration and Firmness are the best developed ; but all are deficient. Cautiousness is enormously large ; the organ of Combativeness is considerable, and Amativeness is large ; there are no other leading organs of the propensities inordinate in development ; the intellect is very moderate. I would have expected to find this case in a lunatic asylum rather than in a jail ; and I cannot fix upon any particular feature of crime. His moral dispositions generally are very defective ; but he has much caution. Except in connection with his Amativeness and Combativeness, I cannot specify the precise crime of which he has been convicted. Great deficiency in the moral organs is the characteristic feature, which leaves the lower propensities to act without control.—*Dr Fife's Remarks* : A thief ; void of every principle of honesty ; obstinate ; insolent ; ungrateful for any kindness. In short, one of the most depraved characters with which I have been acquainted.—*Note by Mr Combe* : I have long maintained, that where the moral organs are extremely deficient, as in this case, the individual is a moral lunatic, and ought to be treated as such. Individuals in whom one organ is so large as Cautiousness is in this old man, and in whom the regulating organs of the moral sentiments are so deficient, are liable to fall into insanity, if strongly excited, owing to the disproportion in the cerebral organs. It is common to meet with such cases in lunatic asylums ; and as the criminal law has gone on punishing this individual during a long life (for he has been twice transported), and met with no success in reclaiming him, but left him in jail, under sentence for theft, at seventy years of age, I consider these facts a strong confirmation of my opinion that he ought to have been treated as a moral patient from the first.

XXXIX. From Dr JOHN MACKINTOSH, Surgeon to the Ordnance Department in North Britain; Lecturer on the Principles of Pathology and Practice of Physic; Fellow of the Royal College of Surgeons of Edinburgh; Member of the Medico-Chirurgical and Wernerian Natural History Societies of Edinburgh, Montreal, Heidelberg, and Brussels.

TO GEORGE COMBE, Esq.

MY DEAR SIR,

EDINBURGH, *27th April 1836.*

IN reply to your letter of the 16th March, requesting me to state whether the natural dispositions are indicated by the size and form of the brain, so as to render it possible during life to distinguish men of desperate and dangerous tendencies from those of good dispositions, I have much pleasure in being able to offer my unqualified testimony as to the fact.

I was formerly not only an unbeliever in Phrenology, but a determined scoffer, and my conversion was slowly produced by the occurrence of individual cases that were accidentally brought before me; and I would now risk all I possess upon the general results drawn from the examination of the heads of one hundred convicts, by qualified persons I could name.

It would be well for society in the countries to which convicts are sent, if the plan proposed by Sir George Mackenzie to the Right Honourable Lord Glenelg were adopted. If any expense be occasioned by the investigation, I shall willingly contribute a share, because the interests of science will be advanced, and a great service will be rendered to the unfortunate convicts themselves.

I may add, that a great revolution has taken place within these few years, not only in this country, but also on the Continent, in favour of Phrenological doctrines; the number of opponents has diminished, and the disciples have in-

creased in a remarkable manner ;—so much so, that in Paris there is scarcely an illustrious name connected with Medicine, or any of the sciences, that is not found enrolled in the list of Members of the Phrenological Society. You may make whatever use you please of this letter ; and with much respect towards you, for the great share you have had in advancing our knowledge of the true science of mind, and placing it on a wider and more substantial basis,

I am, my dear Sir, yours very faithfully,

JOHN MACKINTOSH, M. D.

XL Certificate from **HENRY MARSH, Esq. M.D., M.I.R.A.**, one of the Physicians to Steven's Hospital, Consulting Physician to the Dublin General Hospital, St Vincent's Hospital, and the Institution for the Diseases of Children ; **ROBERT HARRISON, Esq. M.D., M.R.I.A.**, Professor of Anatomy and Physiology, Royal College of Surgeons in Ireland ; **RICHARD TONSON EVANSON, Esq. M.D., M.R.I.A.**, Professor of the Practice of Physic, Royal College of Surgeons in Ireland ; **JAMES ARMSTRONG, D.D., M.R.I.A.** ; **FRANCIS WHITE, Esq.** President of the Royal College of Surgeons in Ireland ; **W. F. MONTGOMERY, Esq. M.D.**, Professor of Midwifery to the King and Queen's College of Physicians in Ireland ; **WM. W. CAMPBELL, Esq. M.R.I.A.**, Demonstrator of Anatomy to the College of Surgeons in Ireland, Resident Assistant Physician to the Dublin Lying-in Hospital ; **ANDREW BOURNE, Esq. Barrister** ; **THOMAS EDWARD BEATTY, Esq. M.D.**, late Professor of Medical Jurisprudence, Royal College of Surgeons in Ireland ; **ARTHUR EDWARD GAYER, Esq. LL.D.**, Barrister ; **ANDREW CARMICHAEL, Esq. M.R.I.A.** ; **JOHN HOUSTON, Esq. M.D.**, Curator of the Museum, Royal College of Surgeons, Ireland, Surgeon to the City Dublin Hospital, Surgeon to the Charter Schools of Ireland, and to the Deaf and Dumb Institution for Ireland ; **H. MAUNSELL, Esq. M.D.**, Professor of Midwifery to the

Royal College of Surgeons in Ireland, and Member of the Medical Society of Leipzig.

DUBLIN, *March 25. 1836.*

WE the undersigned declare our belief, from what we know or have seen of the science of Phrenology, "that the natural dispositions are indicated by the size and form of the brain to such an extent, as to render it quite possible during life to distinguish men of desperate tendencies from those of good dispositions;" and we feel no hesitation in recommending, that trial should be made of the experiment proposed by Sir George Mackenzie, to prove the possibility of this application of Phrenology.

We conceive that, in affording this opportunity for putting publicly to the test the degree of accuracy to which Phrenology has been brought, as a scientific method of determining character, and so discriminating between the natural dispositions of criminals, the Secretary for the Colonies will but act the part of an enlightened statesman, willing to keep pace with the advance of knowledge, to do justice to science, and afford the Government opportunity for availing itself of all aid to be derived from the lights of philosophy, in fulfilling the arduous and responsible duties connected with criminal legislation.

HENRY MARSH.

ROBERT HARRISON.

RICHARD TONSON EVANSON.

JAMES ARMSTRONG.

FRANCIS WHITE.

W. F. MONTGOMERY.

WM. W. CAMPBELL.

ANDREW BOURNE.

THOMAS EDW^d. BEATTY.

ARTHUR EDW^d. GAYER.

ANDREW CARMICHAEL.

JOHN HOUSTON.

H. MAUNSELL.

XLI. From His Grace the ARCHBISHOP of DUBLIN.

I am fully convinced that the proposed phrenological experiment of Sir G. Mackenzie, Bart., is amply entitled to a fair trial.

RD. DUBLIN.

XLII. From the PROVOST of TRINITY COLLEGE.

PROVOST HOUSE, April 18. 1836.

I AM decidedly of opinion that the experiment proposed by Sir Geo. Mackenzie should be made, especially when I consider that it can be made without difficulty or expense.

BAR. LLOYD, Provost T. C. D.

XLIII. From H. LLOYD, Esq. F.T.C.D., Professor of Natural Philosophy, Dublin.

TRINITY COLLEGE, April 8. 1836.

HAVING seen a paper signed by Mr Combe, relating to a phrenological experiment proposed by Sir George Mackenzie, I am of opinion that such experiment is deserving of a trial.

H. LLOYD.

XLIV. From MOUNTFORT LONGFIELD, Esq. F. T. C. D., Whayleaw, Professor of Political Economy.

I HAVE been informed of the experiment proposed by Sir G. Mackenzie, and am of opinion that very important results may be obtained, if the State will in that manner lend its assistance to make the science of Phrenology

available for purposes of public utility. I am altogether unacquainted with the details of phrenological practice, but from what I have read upon the subject, I am convinced that the science is founded on true principles, and that to writers on Phrenology we owe much of the light that has been thrown upon the philosophy of the human mind. Their metaphysics appear to me in general correct, with as small a proportion of error as could be expected on works written upon a subject which has not yet been made a branch of public education, nor converted into a source of profit to individuals.

MOUNTIFORT LONGFIELD.

XLV. From PHILIP CRAMPTON, Esq. Surgeon-General, Dublin.

DUBLIN, *April 12. 1836.*

I AM of opinion that the experiment proposed by Sir Geo. Mackenzie, with a view to ascertain whether or not "the natural dispositions are indicated by the form and size of the brain," is worthy of a trial.

PHILIP CRAMPTON.

XLVI. From AR. JACOB, Esq. M.D., Professor of Anatomy,
Royal College of Surgeons, Dublin.

DUBLIN, *April 27. 1836.*

I HAVE not paid sufficient attention to the study of Phrenology, to justify me in giving a decided opinion respecting its value, or the importance of its results; but I cannot hesitate to say, that such a case has been made out, (to prove "that the natural dispositions are indicated by the form and size of the brain, to such an extent as to ren-

der it quite possible during life to distinguish men of desperate and dangerous tendencies from those of good disposition,") as warrants the experiment proposed by Sir G. Mackenzie.

AR. JACOB.

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